JOURNAL OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

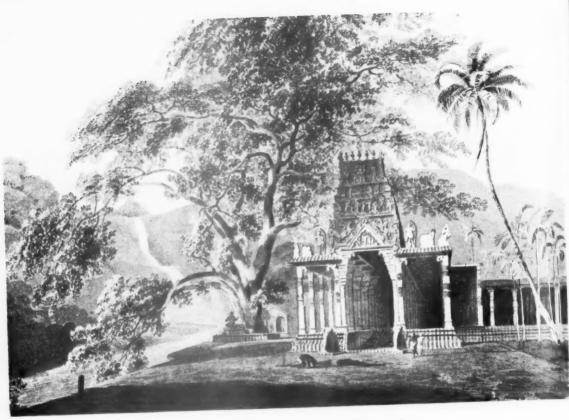
THIRD SERIES

VOL. 40. No. 10

25 MARCH 1933

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COURTALLUM HEAR TANCANCHY, TINNEVELLY DISTRICT, INDIA Thomas Daniell, R.A. [1749-1840]

This drawing comes from one of the least known but most interesting collections in the R.I.B.A. library, which consists of some 400 drawings in wash, water colour and pencil made in India at the end of the eighteenth century by Thomas Daniell, R.A. Although both Thomas Daniell and his nephew William, also an R.A., exhibited a great deal in England very little is known of them. They worked together, William in his earlier years probably being an assistant to his uncle, helping to set out drawings with the aid of the camera obscura, of which they made much use. There is an interesting exhibition of their work at present being held at Walker's Galleries in Bond Street.

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JOURNAL OF THE ROYAL INSTITUTE of BRITISH ARCHITECTS

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No. 10

Journal

Sir Reginald Blomfield, R.A., F.S.A., Litt.D., p.-P.R.I.B.A., Mr. Arthur J. Davis [F.] and Lt.-Col. (art de Lafontaine, O.B.E., T.D., [F.], have recently had the honour of being appointed Chevaliers de la Legion d'Honneur.

A new Chapter of the Royal Incorporation of Archiects in Scotland has been formed to include all archiects within the counties of Stirling and Clackmannan. The first President of the new Chapter, which is to be called the Stirling Chapter, is Mr. John Begg [F].

On I April the new Town and Country Planning Act comes into force. Besides many new provisions it codifies and rearranges all preceding town planning legislation. With the limitations imposed on its scope by a critical House of Commons it is no longer worth quarrelling: the argent need is to make the fullest possible use of the legal instrument provided. There is little chance of new enactments till any defects have been fully proved in practice. But in so complex a structure active administration waits on interpretation; and only from the Minister, whose powers override and control all action by local authorities, can such interpretation come. It is infortunate that the detail guidance of a new set of 'Model Clauses' does not seem likely to be ready till the autumn.

But we welcome an admirable first instalment of fficial explanation in "Circular 1305" and in a summary the Act issued in the last few days by the Ministry of Health to all planning authorities. The former is, for a Government publication, more than usually human and firect in its practical common-sense approach. Planning soundly defined as "a means by which individual ctivities may be directed towards larger benefits, and conomies may be effected for the individual and the ommunity," and not, as some suppose, a way of swelling municipal at the expense of private enterprise. It is visely urged that schemes—especially regional schemes should be no more detailed than necessary, but should aim at the quick provision of a general framework for levelopment, which subsidiary schemes and orders can implify later as required: a warning against the vague and unpractical is rightly added. Executive rather than dvisory regional committees are recommended, and the 0-operation of county councils strongly advised. There ollows an outline of powers under the Act grouped under onvenient heads, and finally an emphatic recommendation that all planning should, so far as possible, proceed by general consent, after the fullest consultation of all local interests.

Within the next few days the Report of the R.I.B.A. Joint Committee on the Orientation of Buildings will be published and will be obtainable from the Institute or through booksellers at the price of 5s. (5s. 6d. post free). A descriptive leaflet was sent out in the last number of the JOURNAL, including an order form, which we hope will be filled in and returned to the R.I.B.A. as soon as possible by all members who want copies.

The original publication in the JOURNAL last September only included the main Report, the valuable appendices, over one and a half times as long as the body of the Report, having unfortunately to be omitted on account of their length, though they are absolutely necessary to a complete understanding of the technical details discussed in the Report itself. When the Report was first printed, its reception by both technical and lay Press was so good that the Committee was left in little doubt that a reprint with the appendices would be necessary. The Times gave a column summary and a leading article to the Report on the day of its publication, and most of the other non-technical papers were as generous in their treatment. The lay Press does not waste its space on matters of no interest to laymen, and that, for instance, the Evening News should give half a column, starting with the words "It will not be the fault of the Royal Institute of British Architects if we don't have sunnier homes, offices, schools, hospitals and factories . . . without a significance that all alert architects will do well to ponder and act by.

The world has suddenly become sun-conscious and aware of a new meaning in the descriptive phrase "to sin against the light." Our hospitals must now have "solaria," our schools open-air and sunny classrooms, our houses their sun porches and roof gardens, our offices can no longer face dreary sunless areas without protest. The old hit-and-miss type of design will serve no longer, doctors and schoolmasters, hotel owners and even the common or garden client will all expect, as many do expect already, proof on paper that their buildings are rightly orientated before they are prepared to pass plans. How many architects or town-planners could give that proof even to their own satisfaction? This Report has come out at an opportune moment, and will, we hope,

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receive the support it deserves from architects, who have genuine cause for pride that such an important piece of research has come from their Institute.

The C.P.R.E. has just produced a very useful little pamphlet on electricity transmission lines, which we would like to commend to our readers. There is probably no aspect of the Preservation of Rural England over which more dialectical bones have been broken than electricity transmission lines in places where they are considered to conflict with rural amenity. It is patently absurd that two aspects of amenity should be allowed to come into conflict-for we must consider the provision of electricity as an amenity no less than the preservation of scenery. In any case, nothing that anyone can do will reverse the policy entered upon by the Electricity Commissioners, and the violent protests that are heard too often to be effective, anathematising each and every pylon that appears, often only betray a fanatic enthusiasm rather than constructive common sense. The C.P.R.E. pamphlet is eminently constructive, and should be read by everyone who is eager to assure that a minimum of harm shall be done by transmission lines in his locality. It explains quite briefly the policy followed by the Commissioners, and describes the various types of lines. This is followed by a list of recommendations of how the lines may best be treated so as to cause the least possible disturbance to amenity. All this is directed more at the supply authorities than the general and protesting public. The responsibility lies first of all with the authorities, and the more it can be brought home to them that it is their duty to avoid unseemly intrusion, and to treat the masts, pylons and stations by suitable painting or surrounding plantations the better.

The final section of the pamphlet, which is headed Procedure Recommended, suggests ways by which difficulties can be avoided before they become serious. Nothing is so much inclined to excite nervousness and wrath as the idea that officialdom may present a wondering public with a completed scheme which cannot be changed. If those whose duty and interest it is to preserve amenity and the Electricity Commissioners and their executive officers can be persuaded to get together in the early stages of a scheme, many of the present difficulties will be avoided. The central authorities of the C.P.R.E. have always been alive to the advantages of negotiation, but so often opportunities are lost through the branch members not themselves being sufficiently alert when danger threatens, and then, when faced with a fait accompli, adopting a threatening attitude which is generally useless as a means of moving the imperturbable authority concerned.

We promised some months ago that when a sufficient number had been issued we would publish an index of the Building Research Station Notes that have now been appearing as a supplement to the JOURNAL for about two years. The index will be found as an inset to this JOURNAL and we hope that sufficient members of the Institute have kept the notes as they have been issued to make the production of the index worth while. Those who have not hitherto paid much attention to the notes might well spare a moment to glance through the index and the last issue of the notes which accompanies it to convince themselves of their value. The range of subject touched on is extremely wide—as wide indeed as the interests of the Research Station itself, which is saying a great deal—and the information given is of real and permanent value—that this is so is the only justification for its publication, and has been proved amply by the known use that is made of these notes.

Those who know the delightful street views drawn about a hundred years ago by John Tallis, and published by him as a shoppers' guide to the principal streets of London, will have been delighted by the information which Mr. Goodhart-Rendel gave in his lecture on Piccadilly, that a series of "New Tallis" drawings is now being made following closely the style of the earlier version. A number of these New Tallis drawings were printed in the last number of the JOURNAL beneath their prototypes, and illustrated clearly enough what a delightful and indeed historically important record of a hundred years change they will make.

The drawings are being made by unemployed members of the R.I.B.A. who can only carry on with the work so long as money is forthcoming to pay them. We hope, therefore, that as good a response as possible will be made to Mr. Goodhart-Rendel's appeal for support, and that anyone who can do so will send a contribution to the Architects' Unemployment Committee at the R.I.B.A. earmarked for the "" New Tallis" drawings.

The series of public lectures on how to look at London which is being given on Wednesday evenings at the R.I.B.A. has opened most successfully with larger audiences than we have known at any of the previous series. This is partly due no doubt to the enjoyment that the Londoner has in his city—and yet the average person knows so preposterously little about London's architecture. He will probably know quite an impressive amount about what is called its "literary history," but his architectural knowledge, if he has any, is likely to stop short at the eighteenth century—indeed, it must be rather a surprising revelation to some of the audience to hear ordnary nineteenth-century buildings talked of as "Architecture" and modern buildings of the most everyday kind discussed with the interest that is, in the lay mind, so often reserved for old buildings and buildings of historica importance.

"What London might be"—the subject of the last lecture—is in Londoners' hands for good or ill. Nothing is so destructive as apathy and nothing is so likely to destroy apathy as the stimulation of straightforward architectural wisdom provided in these lectures.



Fig. 12.—The Market Hall, Nairobi. (See page 398)

RECENT DEVELOPMENTS IN BUILDING

BY OSCAR FABER, O.B.E., D.Sc., M.Inst.C.E. [Hon. A.]

A Paper Read before the Royal Institute of British Architects on Monday, 20 March 1933 Mr. Sydney Tatchell, Vice-President, in the Chair

F CONOMY of construction is a matter of paramount importance in these days.

One reason is, of course, that with rents still largely determined by pre-war buildings, and postwar building being largely governed by costs of labour and materials of the order of twice pre-war, building developments are necessarily greatly restricted from financial considerations unless greater economy of construction can be achieved by special

There are two main directions in which this economy can be obtained. One is by using ordinary construction with greater knowledge, which enables us to say where material can be reduced without reducing the general factor of safety, leaving untouched the places which were really the limiting considerations. The second is by investigating new methods of construction altogether, involving a development in the technique of building. Much work is being done in both directions, and it is proposed to refer to a few examples.

Under the ægis of the Steel Research Committee set up by the Department of Scientific and Industrial

Research, tests have been carried out at the New Geological Museum at South Kensington under the supervision of the author of this paper.

These tests have been directed to checking the actual stresses in a full-scale steel frame for a building of four storeys.

It should perhaps be mentioned here that in the design of steel frames of this character it has been usual in the past to calculate the bending stresses in the stanchions on the basis of assuming the reactions of the beams to occur on the centres of the stanchion brackets. The eccentricity of this point from the centre line of the stanchion multiplied by the beam reaction in tons determines the bending moment in the stanchion.

This assumption would be correct if this were the only means of attachment between the beam and the stanchion, but obviously a building constructed in this way would have no resistance to lateral forces such as wind and earth tremors, and would be entirely unstable. To give it this necessary stability against lateral forces the joints are given stiffness by adding top cleats between the beams and stanchions

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as well as bottom cleats, and it has been clear to those who have given thought to the matter that this modification must inevitably modify the correctness of the assumption as to the position of the reaction previously referred to, increasing its eccentricity and the bending moment in the stanchion with it.

The question has been, whether this increase was material or not. The so-called practical man has been disposed to argue that the increase was theoretical and not reflected in the actual conditions on the site. Those, however, who have studied the matter most closely have held that the increase was important.

It was the object of the tests at the Geological Museum to ascertain, among other things, what the order of this increase was.

It should be remarked that the connections in this case were of the minimum degree of stiffness usual in practice. The top cleats were connected to the beams, which consisted of two 24 inch by $7\frac{1}{2}$ -inch joists side by side, by only two $\frac{7}{8}$ -inch bolts. In actual practice, as you are aware, connections of much greater stiffness are often employed, and there, of course, the effect would be even greater in proportion.

To cut a long story short, the general conclusion of this particular investigation has been to show that even with the comparatively light connection referred to, the bending stresses in the stanchions were practically doubled as compared with those calculated on the ordinary basis, and that an approximately correct estimation of the moment is obtained by adding to the moment ordinarily calculated one obtained by considering the top bolts stressed to eight tons per square inch in shear and multiplying the force so arrived at by the depth of the beam (see Fig. 1).

It would, of course, not be justifiable to assume that this would be correct under all conditions, and further tests are in progress by the Department.

I am obliged to the Department and to the Chairman of the Steel Research Committee for permission to refer to this matter at this stage, and a fuller account will be found in the Second Report of the Steel Research Committee which is shortly due for publication.

The next matter to which I propose to refer relates to the distribution of pressure under bases and foundations and the stability thereof arising from this consideration.

In the design of foundations it has been usual, and is still usual to-day, to assume that a concentrically loaded foundation exerts a uniform pressure over the area of the base, and that the stability may be

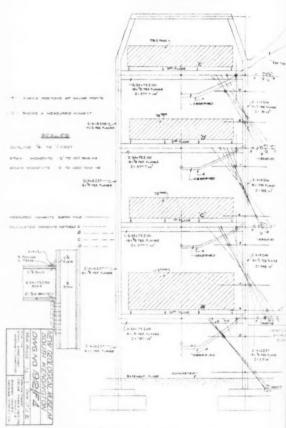


Fig. 1.—The New Geological Museum Strain measurements

determined by ascertaining whether the pressure so arrived at is one which gives conditions of stability in the soil at this particular depth.

In 1929 the author, with the assistance of Mr. K. Montgomery-Smith, B.Sc., A.M.Inst.C.E., and the collaboration of Mr. R. H. H. Stanger, P.P.I.Struct.E., made a series of researches which may be of interest in this connection, as they give results very different from those normally assumed.

The author believes that these researches are consistent with some carried out by other investigators, though quite an original form of experimental apparatus was used in these tests.

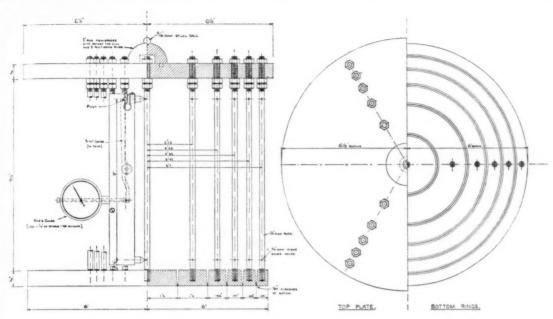


Fig. 2.—Tests on Earth Pressure Detail of test specimen

The apparatus is shown in Fig. 2 and consists of a heavy steel plate near the top which is connected to a heavy lower plate which rests against the soil to be experimented on. The lower plate is divided up into a series of concentric rings, each of these being connected to the top plate by three steel rods \(\frac{1}{4}\) inch in diameter, provided with extensometer gauge holes to which an extensometer can be fitted so as to read the stress on each of the rods.

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The upper plate is provided with a semi-spherical bearing at the middle to ensure the load being applied in the centre, and the whole load on the bottom plate through the three \(\frac{1}{4}\)-inch rods.

As a matter of convenience the dimensions of the rings have been so chosen as to give an equal area supported on the soil, except that the centre disconly gives one-third of the area of the rings, and is, consequently, only carried by a single concentric rod.

It is clear, therefore, that with uniform distribution of pressure on the soil, the load on all the rods would be equal.

Fig. 3 shows how this apparatus was loaded by means of a steel beam pivoted at one end and carry-

ing a large receptacle containing weights and shot at the other, which could be varied as required.

The soil to be experimented on was contained in a stout steel cylindrical box which would normally have a free surface at the top, but where it was desired to get the effect of a soil surcharge on a foundation at a considerable depth below the free surface a steel plate completely filling the top of the box round the testing apparatus could be applied on the surface and separately loaded to give any desired surcharge pressure round the experimental foundation.

The material in the box used in the tests was either clay or sand, and where clay was used the top of the box was unbolted and the box was hammered down into a clay foundation so as to fill it completely with virgin clay, the top being then sheared off flush.

As will be mentioned later, this has some importance, as clay like London clay has a greater cohesion after considerable punning than when left in its undisturbed state, where it seems to have certain irregular planes of weakness which slightly reduce its cohesion and its shear strength.

In practice the experiment was conducted by applying a certain load, which could be measured, on

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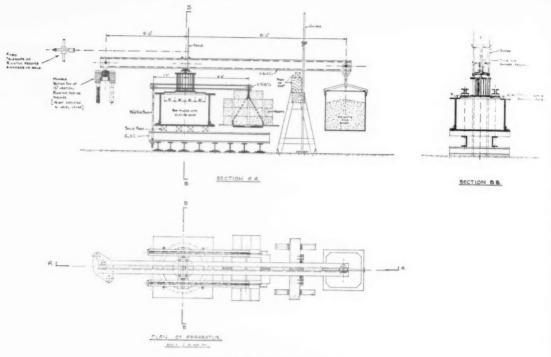


Fig. 3.—Tests on Earth Pressure Detail of apparatus

to the specimens. Extensometer readings were then taken on each of the 16 rods, and, in this way, the load on each ring calculated and reduced to tons per square foot.

As a check on the experiments, it is clear that the total load on the 16 rods must agree with the load applied on the specimen, and this was found to be so within 2 per cent. or 3 per cent. for each experiment, which gives an increased confidence in their accuracy.

The sand used in all these tests was dry Leighton Buzzard sand, as used for cement testing.

Fig. 4 shows the actual distribution obtained in one of the sand tests with no surcharge, i.e., with the foundation on the top surface, where the outer sand was free to escape without restraint in an upward direction.

It will be seen that the bottom curve corresponds to an average pressure on the base of 3.53 tons per square foot, and it is perhaps a remarkable commentary on Rankine's formula that it was possible to get 3.53 tons to the square foot on a free surface of sand. It will be seen, however, that the pressures

at the edge of the base never exceed 1 ton to the square foot, while the maximum pressure at the centre reaches a figure as high as 9.4 tons to the square foot.

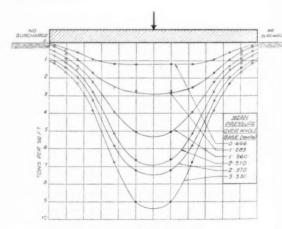


Fig. 4.—Sand Test—No Surcharge

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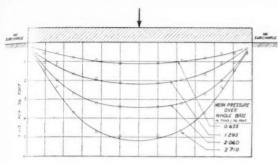


Fig. 5.—Sand Test—No Surcharge

Fig. 5 shows the results of another similar experiment on sand where complete settlement occurred at 3·19 tons per square foot, though this load was carried for some time before failure occurred, but not long enough to enable extensometer readings to be taken.

When the average load was 2.71 tons per square foot, the load at the edge was negligible, and that at the centre 5.2 tons per square foot, giving a central pressure approximately twice the average; this agrees with a parabolic distribution (see Fig. 9).

Fig. 6 shows a test with the surrounding material surcharged to 1.46 tons to the square foot, i.e., corresponding approximately to a foundation on sand at a depth of about 30 feet below the ground.

In this case it will be seen that there is much less difference in pressure between that at the edge and that at the centre.

It will also be seen that the presence of the surcharge round the edge enabled much higher pressures to be carried successfully. An average pressure of 4.57 tons per square foot was carried, and at this pressure, the pressure at the edge was

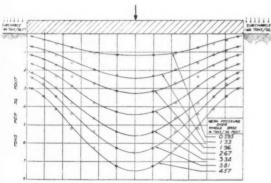


Fig. 6.—SAND TEST—SURCHARGE 1'46 TONS/SQ. FT.

about 3 tons to the square foot, and the maximum pressure at the centre approximated to $7\frac{1}{2}$ tons to the square foot.

Without giving all the experiments in detail it may, perhaps, suffice to give the results of the sand experiments in general by stating that distribution of pressure where the foundation is near the free surface is approximately parabolic, and, where the foundation is at a considerable depth below the surface, the distribution is intermediate between parabolic and uniform.

Coming now to the clay tests, it should, perhaps, be explained that clay is a very difficult material to experiment on for a variety of reasons.

Firstly, because it is by no means absolutely uniform in hardness, and secondly, because in a warm dry laboratory it loses its moisture rapidly and changes its properties accordingly. The

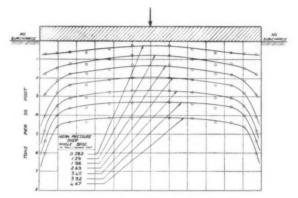


Fig. 7.—Blue Clay Test—No Surcharge

latter was prevented by covering the free surface of the clay with a very thin sheet of india-rubber sufficient to prevent evaporation, but not sufficient to influence the results by altering the distribution.

Fig. 7 shows a typical test on clay with no surcharge, i.e., a clay foundation near the surface.

It will be seen that the distribution is quite different from that on sand, being a maximum at the edge and a minimum near the centre.

When the average pressure over the base was 4.67 tons per square foot, the maximum pressure at the edge was about 7 tons per square foot, and the pressure near the centre about 4.1 tons per square foot. The fact that the average pressure is so much less than the edge pressure, which is the pressure to which failure of the subsoil is limited, is of extreme importance because it means that when a safe pressure per square foot has been cal-

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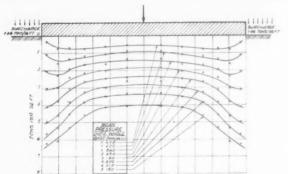


Fig. 8.—Blue Clay Test.—Surcharge 1:46 tons/so. et.

culated from a formula similar to Bell's, which only gives the pressure at the edge, it means that the average pressure on a base of considerable size has to be taken at a considerably lower value, in the present case approximately only two-thirds of this value.

Fig. 8 shows a blue clay test with a surcharge of 1.46 tons per square foot, round the edge, equivalent to a foundation on clay at a depth of about 30 feet below the free surface.

The effect of the surcharge appears to be less important with clay, as compared with its effect on sand, though, of course, it somewhat raises the average pressure which could be carried on a foundation. Where the average pressure on the base was 5·18 tons per square foot, the pressure at the edge appeared to be approximately 6½ tons per square foot and the pressure at the centre approximately 4 tons per square foot.

In general it may be said, as the results of the clay experiments, that the distribution generally appears to approximate to one giving a maximum at the edge and a minimum at the centre, the mean pressure being two-thirds of the edge pressure and the distribution between the two being a curve which appears to approximate to an ellipse.

Fig. 9 shows these ideal pressure diagrams set out more neatly and free from local variations in individual experiments.

It is now, perhaps, of interest to consider some of the results which appear to follow from these facts.

In the first place, it becomes clear that from the point of view of the stability of the soil, a foundation on sand is going to permit a far higher average pressure than that based on considerations of stability of the sand at the edge of the base, and these experiments explain why Rankine's formula gives results so very much less than those justified by

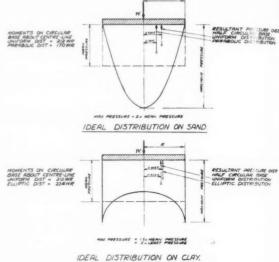


Fig. 9.—IDEAL PRESSURE DIAGRAMS
Sand and clay

tests and experience, even when they are applied to materials which appear to approximate most closely to the ideal material which he was considering, namely, a granular material depending on friction, and devoid of cohesion.

Foundations on clay, however, appear on the contrary to have a total stability less than the stability calculated from consideration of the safe pressure at the edge, and it would appear to be necessary in obtaining the total pressure on a base to multiply the safe pressure at the edge by a factor which may be of the order of two-thirds in addition, of course, to any factor of safety which it may be prudent to require.

Added to this there is, however, another consideration when we come to the strength of a base itself.

Most bases are designed as cantilevers from the centre, and it will be seen that with the sand foundation the centre of gravity of the load comes nearer to the centre line than it did with uniform distribution, and the total bending moment is much reduced in consequence. The converse is true in the case of clay.

While on the subject of foundations, the author would like to offer a word of warning in connection with *piled foundations*, which often contain traps which are not always obvious.

There seems to be a popular belief that provided a pile gives the set required in accordance with a

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pile-driving formula corresponding to a particular carrying capacity, or if an individual pile will safely carry a certain test load, a group of similar piles may be assumed to carry the total load with safety pro rata to the number of piles. There are many cases where this is entirely untrue and where very serious accidents to buildings have occurred by a neglect to recognise these conditions.

Fig. 10 represents a particular set of underground conditions in which piles are driven through a layer of clay, then through a thick layer of peat into a bed

of underlying clay.

When pile No. 1 is driven it will encounter resistance which is represented by the sum of the friction on the lengths AB, BC, CD, and the end resistance of the point, and these four items go to make up this total resistance both when this pile is being driven and if it is subsequently loaded with the test load, and the test load in this case may be entirely satisfactory.

The friction on the length AB transfers a certain proportion of load to the upper layer of clay, which preads it over a large area such as EF of the peat layer, where it may produce a pressure on the peat so low as to be negligible, and no settlement may

in consequence occur.

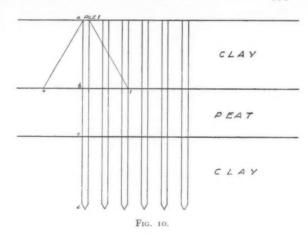
If, however, a group of similar piles is driven dose together, the areas corresponding to EF of the various piles become superimposed, and a much greater pressure may be exerted on the peat, which it may be unable to resist, and the peat then squeezes up and drives the contained water away laterally.

The peat then becomes exposed to the pressure represented by the weight of the upper layer of clay plus the proportion of the skin friction on the piles represented by AB, and under these conditions the

peat may squeeze up very appreciably.

The layer of 12 feet of peat, in one example, was queezed to the extent of two or three feet. When this happens the only portion of the resistance of the pile which remains to resist settlement is the skin friction on the portion CD, plus the resistance of the point, and this resistance has to balance the load on the pile, the weight of the pile, and the weight of the upper layer of clay which, adhering to the length AB, gets carried on the pile, no longer receiving adequate support from the peat below it.

In this way it sometimes happens that a group of many piles may only carry a small proportion of the load per pile which any individual pile tested ingly would appear to justify, whether this test takes the form of a pile-driving formula or whether it is obtained by an actual loading test on the pile.



The author has come across many cases where buildings erected under somewhat similar conditions have settled grievously, where the architect or engineer considered that he had taken all reasonable precautions in estimating the load per pile and in providing piles which, according to a wellrecognised formula, should be competent to carry such a load.

It will be recognised that this is quite apart from any question of the soundness or otherwise of the particular pile-driving formula employed, of which it is only necessary to say that a great many give very inaccurate results, as is obvious from the fact that a dozen or so of different formulæ may give results varying as much as several hundreds per cent. among themselves.

Fig. 11 shows a particularly interesting example of a pile-driving problem where it was required to provide foundations for a very heavy silo building weighing approximately three tons to the square foot.

The test piles of timber drove through to a depth of 65 feet on to a layer of hard red marl, where they

suddenly reached refusal.

The concrete piles were designed to be driven with a 4 ton monkey dropping 4 feet, and to give a set of 20 blows to the inch, the timber test piles having been driven through to the red marl with only a 2 ton monkey dropping four feet and with a set never exceeding ten blows to the inch, which was reached at a hard crust about 55 feet down, and under which, it was clear from the pile-driving records, there was a layer of soft running sand, as the sets drop down to as little as thirty or forty blows to the foot after the hard crust was penetrated (see Tables I and II on next page).

A=Spliced pile



HARD RED MARL

B=Stopped for steam.

Fig. 11

CARLE:	- T	AND	TT

	TRIAL PIL	E RECOR	RI)	BORE HOI	E No.	I	
Ft. below ground	Blows per foot	Ft. below ground	Biows per foot	Chart of			
5	21	37	30			lt. i	in.
5 6	4	38	30	Made ground		2	0
7	I	39	29				
8	1	40	28	Blue clay			
9	3	41	25			10	0
10	2	42	21	Brown clay		13	O
II	3	43	18	Blue clay			
12	3	44	20	Brown clay	_	17	0
13	3	45	20			20	0
14	4	46	I i)				
15	4	47	22 B				
16	4	48	26				
17	4	49	25	751			
18	4	50	47	Blue clay			
19	5	51	76				
20	$\frac{5}{6}$	52	75				
21		53	7.5 B				
22	5 5	54	68				
23	5	55	60			46	0
2.1	$\frac{5}{6}$	56	77				
25		57	122 B	D1 - 1			
26	7	58	113	Blue sandy			
27		59	73	clay			
28	6	60	44 B			1.	
29	6	61	36	D11		65	0
30	7	62	34	Red marl			
31	7 8	63	30				
32		64	31	Red sand rock		73	0
33	7	65	34			73	6
34	8	66	100 for 10 in.	Red marl			
35	7 A		80 for le in.		-	80	2
36	42						

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Experience showed that the concrete piles had the greatest difficulty in penetrating this crust and reach the specified set in the hard layer, and the problem then arose as to whether this set could, under these circumstances, be accepted. An investigation of the matter revealed the following:

The weight of earth overlying the running sand represented a hydrostatic pressure of about 3 tons to the square foot, and had the piles been stopped in the hard crust above it they would have transferred on to it another three tons to the square foot, representing the weight of the silos, thus giving a pressure of about six tons to the square foot on the running sand.

This would be balanced on the water side of the dock by a certain weight of water and soil underneath it, which together produce a pressure of only about two tons to the square foot, so that there would be an unbalanced hydrostatic pressure of about four tons to the square foot, tending to produce lateral movement of the running sand from under the silos under the dock wall and up into the dock, which, in the opinion of the author, would involve risk of the dock wall sliding and the silos subsiding.

It became necessary to insist on the penetration of the hard crust notwithstanding the fact that specification requirements had been met by obtaining the requisite set in the hard crust, as an unsatisfactory foundation would have resulted.

The fact that the timber piles penetrated with a blow of only 8 feet tons whereas the concrete piles filed to penetrate with a blow of 16 feet tons is explained by the fact that the timber piles weighed only about two tons and the concrete piles about eight tons, and the efficiency of the blow was therefore greater.

In this case it became necessary to increase the blow on the concrete piles beyond 16 feet tons to obtain penetration through to the red marl.

This is another example of a case where the driving of a pile to a set normally considered entirely satisfactory would have resulted in a dangerous condition.

As a result of experience of many cases somewhat analogous to the two which have been described, the author would submit the following propositions.

(1) The mere fact of a pile driving to a satisfactory set is no indication that a group of similar piles will safely carry any particular load, the accuracy of a pile-driving formula employed notwithstanding.

(2) The fact of a single test pile being loaded to a given load without subsidence is not in itself a guarantee that a group of many piles will carry this load per pile.

(3) Examination of the soil by bore holes will not alone give the information required any more than an examination of the soil with test piles, but the two taken in conjunction with each other often give valuable information.

Test piles should, as far as possible, be driven to a greater depth than it is proposed to drive the permanent piles.

(4) All the circumstances of the strata need to be taken into account in deciding what is a safe load per pile, and no pile-driving formula is in itself sufficient.

On the subject of economy in building a word should, I think, be said on the relative economy of constructional steelwork and reinforced concrete.

No one would suggest that there are not many cases where a steel frame building is the correct solution to a structural problem. Nevertheless, there is, I think, no doubt that the advantages of reinforced concrete have been too long neglected in this country in cases where economy is an important consideration.

The author recently made a visit to several continental countries and took the opportunity of studying building in these countries, and perhaps the most outstanding feature which struck him was the way in which reinforced concrete frames are used, almost to the exclusion of constructional steelwork, on the Continent generally, for buildings of many storeys.

This has not been so in this country to the same extent, and the author believes the reasons are partly that the economies of this form of construction have in the past not been so necessary or so fully appreciated, and secondly, that reinforced concrete construction in this country has not been so organised as to give sufficiently rapid construction.

The author hopes to show later that speed in the construction of concrete buildings can be attained where the organisation is adequate.

Dealing, however, first with the question of economy, the author recently prepared comparative designs for a steel and concrete column, each to carry 1,000 tons on a 14 feet storey height, with concentric loading, the column being based in both cases on L.C.C. regulations.

The steel stanchion cased came out to £5.79 per foot run, and the reinforced concrete column to £3.39 per foot run, showing that the steel column cased is 1.71 times the cost of the concrete column.

The rates which were used in the calculations were submitted to a competent quantity surveyor, who approved them as being properly comparable.

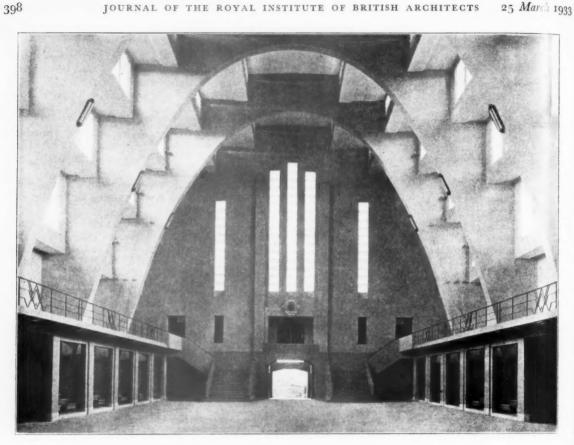


Fig. 13.—The Market Hall, Nairobi Interior looking towards the Stewart Street entrance

Approximately the same relation as regards costs exists in regard to beams, as the quantity of concrete and shuttering is approximately common to both, but the amount of steel in the reinforced concrete beam is approximately one-third that required for a steel joist, partly because, owing to continuity, it has to be designed for a smaller moment, and partly because the concrete takes the compression and shearing stresses, and steel has only to be provided for the tension stresses, the rods being bent up towards the end to look after the shear in conjunction with the concrete of the beam.

The author has taken out the costs of the constructional work in a good many large buildings and compared the cost of a steel frame building cased with that of a reinforced concrete frame building, and in all cases of buildings carrying several storeys it is found that the cost in concrete is considerably less than that in steel, cased to meet the requirements of building authorities.

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Apart from the use of concrete for the framework of buildings, it is also used in a more interesting manner in structures like the Horticultural Hall, and. more recently, in the new market buildings at Nairobi (Messrs. C. Rand Overy, F.R.I.B.A., and S. L. Blackburne, A.R.I.B.A., architects). Figs. 12 (page 389), 13 and 14 illustrate this latter application.

In this building matters of particular interest included the provision against expansion and contraction due to tropical conditions which had to be specially guarded against.

The Horticultural Hall (Messrs. Easton and Robertson, FF.R.I.B.A., architects) is, of course, too well known to require further description.

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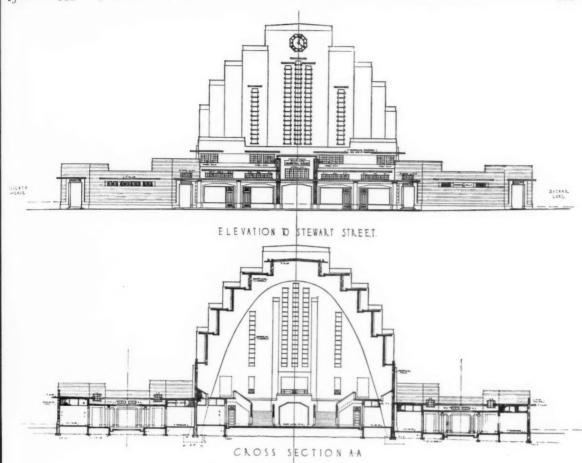


FIG. 14.—THE MARKET HALL, NAIROBI Elevation to Stewart Street, and cross section

Coming now to the speed of reinforced concrete construction, Figs. 15 and 16 illustrate a building being erected for Messrs. Spillers, Ltd., at Cardiff.

The first figure shows the building at a height of the feet above the ground on 6 February, and the second shows it again on 22 February, when it was 120 feet above the ground—i.e., it had risen approximately 80 feet in about a fortnight, not working week-ends, and two week-ends came into this period.

The building in question is a silo building as to the greater portion of it, with a receiving house at one end which has floors and windows in the ordinary way, and this portion went up without any difficulty at the same speed as the rest.

The building was constructed on a system of continuously moving forms, whereby the workmen merely had to pour concrete and place steel to keep pace with the movement of the shuttering.

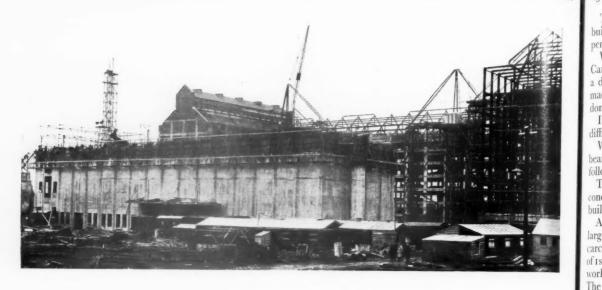
Reinforced concrete walls constructed in the old-fashioned method are built by having shuttering on both sides erected by carpenters, behind whom follow the steel-placing gang, who in turn are followed by the concretors. The concrete is left to set for a day or two, and is not normally placed at a rate of more than 3 feet 6 inches height of concrete at a time. After a day or two's setting the shutters are dismantled, cleaned, oiled and re-erected by carpenters, and the same process repeated.

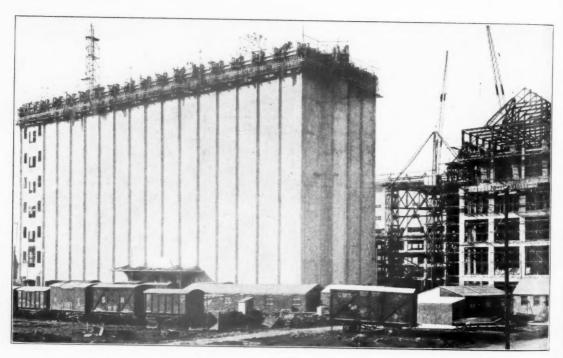
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Figs. 15 and 16.—Two Photographs showing Stages in the Construction of a Silo FOR MESSRS. SPILLERS AT CARDIFF

The net result is that it takes about four days to build a height of about 4 feet, or, roughly, I foot

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With the method of construction employed at Cardiff the building rose at a rate of about 7 feet a day, and even greater progress could have been made under summer conditions, but this work was done in the depth of winter.

It will be seen that fenestration presents no difficulties to this method of construction.

Where the floors occur boxes are left to receive the beam bearings, and the construction of the floors follows up behind that of the walls.

This example shows at any rate that reinforced concrete properly organised can result in quite rapid building.

As regards costs, the author has analysed many large buildings and finds that the average cost of the carcase for a large multi-storey building is of the order of is. per cubic ft. In the item of cost is included framework, casing, floors, walls, windows, but no finishes. The difference between this price of somewhere about is. and the actual cost of the building per foot cube is dependent on whether the finishes are elaborate or simple.

It is, therefore, perhaps of interest that the Cardiff building cost 5\frac{1}{4}d. per foot cube complete, which suggests that this opens up an important field for economical building.

In the author's opinion there is no reason why this system of construction should not be applied to such buildings as office blocks or flats, though, of course, there are several problems which would require attention in each individual case.

Obviously, for residential purposes the insides of the walls would require to be insulated with some material like cork finished with Keen's cement, but even when this has been done a saving of something of the order of 6d. per foot cube is still available.

The silo end of the building was divided into vertical bins with 61 inch walls of reinforced concrete at approximately 13 feet 6 inch centres in both directions, and part of it with walls at 6 feet 6 inch centres in both directions. There is, therefore, approximately twice as many square feet of internal walling as a normal building would have in the shape of floors, and as all the walls have to be centred on both sides as compared with a floor which is centred on one side only, and have also to be designed strong enough to resist a horizontal pressure of about 350 lb. to the square foot, coming from either side, due to the 100 feet of grain, not necessarily balanced, it will be seen that there is much more constructional work inside the silo building than there would be in the case of a building with floors only. This is material in the consideration of the cost.

The author is of the opinion that if architects and engineers were to combine in the development of this kind of construction, such economies might be achieved in building as would open up a new field justifiable financially in spite of the difficult conditions which present themselves to-day.

Vote of Thanks and Discussion

Sir HERBERT BAKER, K.C.I.E., R.A.: Mr. Chairman, ladies and gentlemen,—Your nod, Mr. Chairman, is an honour which cannot be denied, and indeed it is a very great pleasure to me to propose this vote of thanks to my friend and colleague Dr. Faber. You will all agree, I am sure, that this has been a very able lecture; it is a very penetrating one into the real live problems of buildings; and the Lecturer has been very alert and courageous in facing the difficulties met with in the conditions of modern building. For that is the outstanding characteristic of Dr. Faber, his great courage. He never accepts old-established data, formulæ or axioms as though they were fixed laws, but he penetrates into and foresees the real difficulties which have to be met with as conditions change and science advances.

I do not want to criticise his lecture, and indeed I do not feel myself very capable of doing so; there are many here much more capable of it. I will only say that I am glad the lecturer advocates reinforced concrete as against steel construction, but I think he excepted the more complicated building; and I would ask how he gets over the difficulty of the much greater area of stanchions and columns, which is our great difficulty in such buildings.

I am very glad to-night to pay tribute, if I may, on your behalf, and on behalf of architects in general, to collaborating engineers in general, and to Dr. Faber in particular. You all know what special interest and sympathy he has given to the architectural side. But I, especially, owe him a very great debt of gratitude. For very high, very deep and very complicated buildings we cannot get on without the collaborating engineer; and I do not think he can get on without us, though a time may come when there will be no need for scholarly training in the art of architecture if Functionalism and any of the other "isms" of Modernism hold the field of style. The collaboration alliance is so close that it is almost a matrimonial alliance, and I should like to say how happy my marriage with Dr. Faber in this respect has been. Just think what he does. He tunnels down 40 or 50 feet in London clay. and there, like Atlas, who bore the whole heavens on his shoulders, he carries on his shoulders this weight of heavy clay and bears the strains and the stresses of the street outside, quivering with heavy traffic, the dangers from the heavy buildings opposite, where the authorities are always on the qui vive to put the responsibility for their own cracks on to the overburdened shoulders of this Atlas over the way. And in the special case of the Bank of England there has been the old Soane wall which had to be preserved -which had in the past been altered and added to and lined in many places, and sunk a little-he has had this on his shoulders. And inside he has had to carry the nodus of the financial world; and it would not do to have a crack in that! And while Atlas has been bearing all this weight on his shoulders, there is always the danger that if he sank too deep in the clay, he would get into the way of the Underground railways beneath, another danger! And all this while the architect slept peacefully in his bed. I think that the Chairman of the Bank of England Committee, who is here to-night, will confirm that he also slept peacefully while all this was going on. The great help of Dr. Faber to our profession is that he combines the science of the mechanical as well as the structural engineer, and I think that is an enormous advantage, because in the more complicated and enduring buildings-not those put up for advertisement for twenty years—it is essential that all the mechanica of the organism: lungs, heart, veins, arteries, nerves, viscera and everything, should be completely hidden out of sight so as not to interfere with the architecture. But yet those components have to be accessible and made visible for repairs, so that whenever in the future any disease settles on the building, the doctors diagnosis of it can be made and steps taken to effect a cure without a drastic surgical operation. The complications and difficulties in the more elaborate modern structures are enormous, and how Dr. Faber has found time, with all that on his shoulders, to do all this scientific research work, passes my understanding. And I think we are all anxious to-night to pass him a very hearty vote of

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Mr. WALTER ALLEN (Director of Messrs. Spillers. Ltd.): Mr. Chairman, ladies and gentlemen,—I have very much pleasure in rising to second the vote of thanks to Dr. Faber for his very instructive and interesting address. I am particularly interested, as a Director of Spillers, Limited, and mainly responsible for the technical side of that business, in the address which we have heard. Most of the illustrations which you have seen exhibited to-night refer to my company. I may say that we have had difficulties, many of them; we have had many problems to solve, but I have never known Dr. Faber beaten yet; he always has some way out of the trouble. I, not so technical as he, have been able to understand and appreciate the difficulties, when explained by Dr. Faber, which has enabled me to say "Carry on."

Therefore I have the greatest pleasure in seconding this vote of thanks for his excellent address.

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Mr. GEORGE M. BOOTH (Director of Messrs. Alfred Booth and Co., Limited): My privilege, as Chairman of the Bank of England Re-building Committee, has been similar to that of our friends here, of observing how the great architect and the great engineer can combine in a very complicated effort. Unfortunately none of the photographs shown to-night were of the Bank of England, and it is one of the tragedies of Dr. Faber that his great work lies with us, to some extent, hidden. But the Bank of England is a very curious institution, and I can only add to what has been already said about it that "Safe as the Bank of England" is almost more true to-day than it has ever been.

Mr. J. S. WILSON; I did not expect to be asked to participate in this discussion, but I can whole-heartedly congratulate Dr. Faber on his very fascinating and interesting address.

The part which interests me most is the early part. I could not help feeling that the way Dr. Faber presented the problem regarding the supporting power of sand and of clay, and the problems connected with pile-driving, rather suggested approaching these difficult problems from the architect's side, rather than from the side of the civil engineer. Many of us the have had to worry about piles and the bearing power of different earths, etc., for many years, have wrestled with these problems for a very long time, and the diagrams and the information which Dr. Faber has put before us rather provoke a feeling of criticism on the part of anyone who has had to study those matters deeply. He has, no doubt, put it simply only to get it within the scope of the possibilities of a short lecture like this. The question of the supporting power of sand is a rather more complicated one than you would gather from the statement which he made and the experiments which he has been carrying out. I am a member of a committee which has been working for some years on sand and clay. The work is being carried out under the ægis of the Scientific and Industrial Research Department, and Professor Jenkin, formerly Professor of Engineering at Oxford, after tremendous trouble, has been able to do an experiment with sand which he was able to repeat. That has always been a matter of great difficulty: whether you could make an experiment of the nature of those described by Dr. Faber which you could repeat and arrive at the same result. I rather suspect that Dr. Faber has found it difficult to achieve that with his small-scale experiments. There is the influence of the box in which he had his sand—you cannot ignore that. The box had to be of limited size, and so it limits the extent to which you can apply the results.

But there is one thing which astonishes me, and that is the enormous intensity of pressure which he measured round the outer edge of his test plate on the clay. Apparently the clay bore a pressure on one side of this edge line of nothing, and, on the other side, of 7 tons per square foot, without any intervening change whatever. That I find it rather difficult to accept. I hope that Dr. Faber will pursue his experiments a little further trying to increase the size and the total quantity of sand compared with the area of the test plates.

On another point I would ask whether he was satisfied with the stiffness of the upper plate. He referred to the appreciable influence of slight heat on the measuring columns, and there may have been bending in his upper plate which would influence his results.

As to the second part of the paper, I think I can only say what I am sure we all feel: that we are lost in admiration of Dr. Faber's work and the boldness with which he attacks the problems with which he has to deal.

Mr. E. C. P. MONSON [F.]: I would like, sir, to add my testimony and thanks to Dr. Faber for his very excellent paper this evening.

With reference to the diagrams showing earth pressures, it is, I think a revelation to hear that sand will stand up to seven tons per square foot, and that clay will stand up to four, or nearly five, tons to the foot. It seems that our bye-laws still want further reducing, and that we should be less spread for our foundations. Recently I have had buildings pulled down, which have stood for 99 years, with 14-inch walls with one course of footings, and the party walls were sound when pulled down. It seems as if some of the pressures we are looking for are in excess of what they need be.

I will not say that any doubt has been expressed on the experiments which have been made, but I feel sure they would not have been put before us unless with good reason, and unless they had been worked out on accurate data. The method of raising the shuttering round Messrs. Spiller's building is a wonderful invention. It seems to me that when you can raise a building 8 feet in 24 hours, it is a marvellous performance, and one which until now we have not been able to look forward to. When you remember that 2 feet a day was considered to be a very good rate of progress, it is a very great advance to be able to see a building going up one-eighth of an inch every three minutes.

I add my testimony to those already expressed about the

Mr. WILLIAM MUIRHEAD: I would like to say one or two words with regard to the earlier part of Dr. Faber's paper. that in which he dealt with the question of the pressure on the sand and the clay. If I understand him aright, he said it shows that it results in the stability of sand foundations being greater than has been supposed, and that of the clay foundations being less than usually supposed. I do not quite agree with the statement as put in that way. I agree with what he showed on the diagrams, that the reaction of the sand is as he showed it, and the reaction of the clay would be pretty much as he showed it on the screen; but I do not agree that because the reactions vary in that way, the stability of the sand or of the clay foundations would vary in the same way as these reactions are shown by his diagram. There may be something in what the last speaker said about the question of the box in which the experiment was carried out, but even that does not account for my difficulty in accepting his statement that the stability of the sand foundations would be greater or that of the clay less than usually taken. It is more properly put, I think, if we accept the reactions of the ground as he puts them, but I do not agree there is an alteration of stability in anything like the proportion which is shown by the varying vertical reactions of the ground

But I am very pleased to have had the privilege of listening to Dr. Faber. It reminds me of one thing in my experience in dealing with foundations. Many years ago, I was engaged on certain works in London, and Sir Benjamin Baker was called in as the consulting engineer as to the bearing capacity of the London clay. Dr. Faber carries us back to Rankine's formulæ, and he—I think rightly—disagrees with the application of it in the works of to-day. But I would point out that thirty years ago Sir Benjamin Baker dealt with many of the points which Dr. Faber has now been concerned with in his contribution this evening; and the unfortunate thing is that whilst we have records in Rankine's book of all he did in connection with the strength of foundations, we have not the records of the investigations which Sir Benjamin Baker provided the engineering

world with some thirty years ago. But I am pleased to see that Dr. Faber has come forward and given this lecture to The Royal Institute and others present; many of the points which he has now elucidated and enunciated confirm some of the lessons which, thirty years ago, I was forced to learn from having been connected with the works in which Sir Benjamin Baker was consultant; it is a pity that engineers and architects are without records of some of the work which Sir Benjamin Baker did in regard to such questions as our lecturer spoke of to-night. And it is fortunate we have Dr. Faber coming forward and giving us, freely and openly, the benefit of his experience, and the research work which he is carrying out, and which he has now so well put before this meeting. I endorse the vote of thanks which has been proposed and seconded to him for his having come forward so boldly and placed before us the valu-

able results of his experience.

Mr. EWART S. ANDREWS, M.Inst.C.E.: I very much appreciate the honour which your Council has done me in inviting me, as a visitor, to this meeting, especially as it gives me the opportunity of listening to my old friend Dr. Faber, with whom I have worked for many years. We have sat together for many hours on technical committees, and yet remain on the best terms. After twenty years' experience I still have a tremendous admiration not only for his scholarly knowledge-because he has very high academical qualifications-but also for the intrepid way in which he is willing to kick away old traditions, and to base his conclusions on the facts as he can find them. In so doing he is enabling his fellow practitioners to learn a great deal more about the actual properties of materials than can be obtained by a study of the textbooks which are available to us. It is a remarkable thing that the more we think we know about certain subjects, the less explanation we can find for the fact that some structures stand. An American engineer once said, when he was asked by a lady how it was possible for tremendous structures to stand, "Madam, it is a combination of the force of habit with the guidance of Providence."

Mr. Monson referred to a 14-inch wall with a one course footing. I recently came across a case of a cast-iron column in a building which was carrying about 100 tons, and was standing on a brick pier 2 feet, or it may have been only 1 foot 10½ inches square. It was necessary, because a lift had to be put up in the nearest column, to ascertain to what extent the concrete underneath this pier would interfere with the fit of the lift. When the builder got to the bottom of the brick pier he found there was no concrete. But in the disturbance he had made in his excavation a certain amount of settlement occurred, and the soil began to give way under the pressure. There was a weight of 25 tons to the square foot, which had been carried for twenty years on some ballast, and it was not directly on the ballast either!

There was one point of criticism which Mr. Muirhead made, but I do not think he understood Dr. Faber as I understood him in interpreting the meaning of his sand and gravel tests. As I understood Dr. Faber, he said that the base piece for a sand foundation would be relatively stronger than a base for clay, because the pressure in the case of the clay would be at a greater leverage. I do not think he suggested that sand could

carry a higher pressure than the clay.

With regard to the question of driving piles, we are undoubtedly only on the fringe of knowledge about piling, particularly the class of close piling to which Dr. Faber has been alluding. I am sure Dr. Faber will agree that although he has been able to put his points so lucidly to us, there are many problems regarding piling on which we still want to have fur-

ther knowledge. For instance, we do not know to what extent the pile will support more load after it has been for some time in its driven position. Accepting Dr. Faber's point that, at any rate in clay, the principal supporting power comes from friction, I agree with him that if the piles are close, one pile will rob the friction of its neighbour. Assuming that to be true, how ever, we still do not know whether it is not a fact that that friction will increase in time; and if it is the intention of Dr. Faber to reply to this discussion, I shall be glad if he will deal with that point, because I think that gives added stability and strength to the piles.

Mr. J. ARMITAGE: I wish to ask one question. Dr. Faber has shown us the extraordinarily clever way in which they have constructed the Spiller building at great speed, but he has not suggested how it, or any other concrete building, is ever to be taken down, if that should be necessary. That is the crux of the ferro-concrete problem, or at least a very important aspect of it. You can build up a city with ferro-concrete buildings, beautiful if you like—though as a rule they are not particularly beautiful—but not necessarily built in such a way that they will will continue in use efficiently for more than twenty or thirty years. How will you remove them? Blast them, or what? Has that

question ever been faced?

Mr. ALAN MUNBY [F.]: I will not take up the time of the meeting by adding more thanks for this paper, I only want to give you one example of the way in which Providence steps in in the absence of Dr. Faber. It is an extraordinary case of an old flour mill in a distant part of the country which I had to alter. It consisted of a series of floors, there were seven of them, I think, 7 feet apart, with a series of cast-iron columns from the top to the bottom, at reasonable intervals. Those columns were carried on long pitch-pine beams 10 in. by 12 inches, and all the floors had been loaded with sacks of flour. It was said there had been a settlement of some kind, but when I saw the building it had remained long in disuse. I had to take out one or two of the floors to make the building suitable for other purposes, and I took out some of the floors and columns. I had to carry the main parts of the columns as they were before, and I thought it would be well to see if they were suitable to transmit their loads. When we took the floors up there were no connections; the columns were sitting on the floor boards or timber rubbish, and the load was carried from top to bottom without intervention.

Mr. D. W. MITCHELL: Will Dr. Faber tell us whether his stress distributions appeared to change with time, and whether he would expect them to change with variations of temperature, such as must occur in the ground during different seasons.

Mr. BERNARD J. DICKSEE [F.]: I would like to ask one question concerning the piles. A building which I have in my mind at the moment is on the banks of the Thames, and a number of piles were driven almost in a circle, and a final pile was driven down the centre. When you drive a pile you have to compress the soil around it; will not the driving of that central pile considerably increase the skin friction on the remaining piles, and so discount the disadvantage which Dr. Faber has suggested due to the quantity of piles?

Mr. J. S. WILSON: There is one other thing, which I had almost forgotten to mention: it concerns the disparaging remarks often made about early building construction. Recently the papers have referred to some old cast-iron girders taken out at the British Museum. These cast-iron girders were put in nearly 100 years ago; they have served their purpose for all that long time; they have certainly carried all that has been put on them quite safely. Yet when taken out it is suggested that those girders were too weak. A similar thing occurred

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with regard to the Menai Straits suspension bridge. Some years ago the cresses in some of its wrought-iron suspension members were found to be 74 tons to the square inch. The bridge was built more than a hundred years ago, and it has carried all that it was expected to carry for all those years. You cannot, therefore, say it was inadequate in strength and wrongly designed because the stresses in it do not fit in with what we in these days consider right. Such old structures have been successfully fulfilling their functions for long periods, and must have been of adequate strength, and I suggest that instead of lesting new buildings to see if they comply with our present rules and regulations, some of these old buildings before being pulled down should be tested for the purpose of finding out the maximum intrinsic strength they possess which has enabled them to stand satisfactorily. I think more progress might be made in our knowledge in that way than by testing new build-

Dr. FABER, in reply: Mr. Chairman, ladies and gendemen, I thank you most sincerely for the very kind attention which you have given to my very inadequate dissertation, and I do not propose to detain you very long in reply. I also thank very heartily the many important people who have given their time this evening coming to this meeting and have given us the opportunity of listening to an interesting discussion.

A few questions have been asked, which I will touch on

only lightly in an attempt to answer them.

Mr. Wilson is perfectly correct in saying that with experiments on sand there is a great difficulty in repeating a test exactly on a number of occasions. That difficulty is greatest if you are attempting to ascertain a limiting load, that is to say, the limit of what a certain sand foundation will carry. But I do not find the same difficulty when I am investigating the distribution of pressure on a base; I can repeat that experiment as often as I like and I get the same results time after time. However often we repeated that, we got a curve which approximated to a parabola. If I repeated an investigation on the complete failure of the test, which is a different thing, there I agree that according to whether the sand was packed carefully beforehand or was loose you would get a different result. With carefully packed sand you might get four tons to the square foot, whereas if you had the sand stirred up to make it light, there might be only two tons to the foot, You could make the result in that experiment vary according to the conditions. But as to the distribution of pressure, which is the only thing I have given you to-night, on sand, I got practically the same result every time I made the test.

With regard to footings under walls, or the absence of them, in the light of some modern regulations and some modern requirements, it is extraordinary the sort of thing one comes across in successful old buildings. In St. James's Square I have recently come across a wall which is about 70 feet high—it has got some floors, of course, to stiffen it—but down to the ground floor it is 9 inches thick, in very indifferent lime mortar, and the basement is 14 inches thick. It is resting on sand, and it has no footings at all. That sort of thing seems to stand up sometimes, but we do not know how many buildings so built

did not stand up. We have no sufficient record of these things, and I do not think we ought to conclude that it is a wise thing to do.

I did suggest that sand foundations are perhaps stronger than one would conclude from a study of Rankine's formulæ, because Rankine's formulæ only give the safe pressure which you can put on sand at the edge of a foundation. He was considering the stability of a particle of sand at the edge of a foundation, and he gave us a formula for the safe pressure at that point, which depends on the depth below the free surface and a certain function in friction angle. The important thing which occurred to me from these tests was that they showed that even though, according to Rankine's formula, corrected if necessary, the safe pressure at the edge of the foundation has a certain low value, it does not follow that the base as a whole would not be safe up to three or four tons because the centre pressure is so much greater than the edge pressure, with which alone Rankine's formula dealt. And that was the important thing in these experiments. I am convinced you do get, with clay, pressures near the edge which may approximate to the order of seven tons to the square foot. This may not extend to the extreme edge. It probably dies off from a maximum near the edge to, probably, zero at the extreme edge. But the width of my outside annular ring was not small enough to give me readings at that point. For that reason all the curves in my clay diagrams stopped within about one-twentieth of the width of the base from the edge. I could not determine the shape at the extreme edge, but the pressure per square foot on the outside ring averaged about 7 tons per square foot, while that on the middle plate was down to $3\frac{1}{2}$ to 4 tons; I am certain of that.

Then there is the question of piles sticking to the ground when time has been allowed to elapse, which has been referred to to-night. That is a definite phenomenon which every engineer accustomed to pile driving knows and understands. When you continue to hit a pile with one heavy blow following upon another, the pile vibrates, and there is a good deal of lateral movement in it, and it makes a hole for itself in the ground a little wider than the diameter of the pile itself. That space fills up with soft material-water and mud-it may be no more than one-sixteenth of an inch thick, but it enormously reduces the friction while the pile is being driven. If you leave that pile for a period-it may be for only a day-water dries out of that layer and there results solid adhesion between pile and clay. In the case of a pile with a certain weight of monkey, dropping a certain distance with say 100 blows to the foot, you will frequently find that when you restart driving the blows will not shift the pile at all. Time has allowed the clay to make cohesion with the side of the pile. That is an increment of strength, but it only occurs when you are driving piles into a considerable depth of homogeneous material, like clay. It does not apply to the last piling slide I gave you, where the pile is being driven through a hard crust into a layer of quicksand and then on to a suddenly reached hard layer. The

load of the pile was in that case carried on the point of the pile where it reached what was practically rock under lying quicksand, and in such a case, the sticking of the pile after time has elapsed would not help to make them safer. Therefore each case must be treated on its merits. There are cases in which this additional cohesion gives additional stability, there are others in which it does not.

Another question was: How shall we demolish reinforced concrete buildings? [There are some, I think, which will demolish themselves. When I see buildings being erected with a cover of concrete so little that you see an occasional bar coming to the surface, and three months afterwards a rust mark which gradually spreads, and cracks showing the rusting which is going on inside, the question of demolishing these buildings never seems to be a serious one. But when reinforced buildings are properly constructed, with an adequate covering of concrete which protects the steel, I do not think there will be much more difficulty in demolishing than in the case of

the ordinary buildings. An oxy-acetylene lamp will burn through a one-inch rod in about half a second, and I think that your demolishing gang of the future will be amply supplied with tools of that description. And when you have burned through the rod, the concrete can be demolished with a pick in a manner which is not very dissimilar from that of a brick wall built in cement, As compared with a brick wall built in lime, it is more difficult, but as compared with one built with cement there is no very great difference. Not only in the Bank of England but in other buildings some of the demolition was of reinforced concrete which was erected for special purposes during the war, or for some similar purpose, and I have been astonished to find how ordinary reinforced concrete -not the special reinforced concrete used for modern strong-room construction—can be demolished without the excessive difficulty which is sometimes feared.

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It only remains for me to thank you once more for the kind attention which you have given to my address,

"Where Londoners Live"

THE SECOND R.I.B.A. PUBLIC LECTURE

On Wednesday. 15 March, Mr. A. G. S. Butler gave the second of the series of public lectures organised by the Royal Institute of British Architects. The title of Mr. Butler's lecture was "Where Londoners Live."

After a few brief introductory remarks about the distribution of population in the London residential areas, Mr. Butler concentrated his critical discussion on the average suburban house, which he condemned on the grounds of unsuitability and The three essential qualifications of a house, he said, are that it should be well built, convenient to live in and agreeable to look at inside or out, a fusion of these three qualiities producing the most satisfactory result. After a more detailed criticism of the inherent defects of the typical ugly. inconvenient and expensive houses, possessing none of these essential qualifications, which constitute the homes of the average working Londoners, Mr. Butler went on to suggest that people should give up these uncomfortable homes, endured only for the sake of gentility, and live instead in the new modern flats or small improved suburban houses, the average accommocation of which is three bedrooms, a kitchen-scullery, and. substituted for the dining and drawing room, one intelligently planned living room.

This, continued Mr. Butler, constitutes the dwelling-unit of to-day. Theoretically it is a rectangular box with the principal rooms on the south side and the offices on the north. The flat and the small house are tending to merge into one type, a glorification of this unit constituting the luxury flats of Mayfair,

and a reduction constituting the excellent blocks of dwellings for poor people in the slums.

Mr. Butler admitted the disadvantages of monotony and lack of individuality arising from this standardisation, but he emphasised all the advantages of cheapness, neatness, cleaniness, light, lack of noise, and ingenious labour saving devices and having appreciated them from the practical point of view he went on to show the scope offered by these new blocks of flats or groups of suburban houses for asthetic effect, with their flat façades and well-proportioned flat windows outside, and inside the excellent appearance that comes from economy in decoration and the skilful use of beautiful materials.

There followed a discussion of some of the problems of residential dwellings, and in particular the garage problem. In the suburbs this can be solved comparatively simply and well, but, in the centre of London, the only solution is a public garage some way off or a communal garage attached to the block of flats. Mr. Butler suggested that a development of the future would be that the ground floor of the new box-like dwelling-unit should be a garage and the floors above it residential. Another problem is that of noise, and Mr. Butler showed that a number of interesting developments in sound-deadening materials, and double windows would soon be applied to these modern blocks.

Mr. Butler illustrated his lecture with slides of the old and the new dwelling-units, and concluded with an appeal to the public to look with tolerance and intelligent interest at the fair examples of modern standard dwellings in London to-day.



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The R.I.B.A. Annual Dinner

HELD AT CLARIDGE'S HOTEL, BROOK STREET, ON FRIDAY, 3 MARCH 1933

The Annual Dinner of the Royal Institute was held on Friday, 3 March, at Claridge's Hotel, the President, Sir

Raymond Unwin, being in the chair. Following the loyal toasts, which were proposed by Sir Raymond Unwin, the toast of the Royal Institute of British Architects was proposed by Sir JOSIAH STAMP, who said: Mr. President, your Excellencies, my lords, ladies and gentlemen,-I have gathered from experience, and as a result of inducive reasoning, that when the Executive of a great technical or expert institution are engaged in looking for a proposer of a toast and are playing for safety, they alight upon somebody who, they think, has a large heart, generous sympathies and abysmal ignorance of the subject with which they are especially associated. In that way they certainly escape the possibility of any adverse criticism. While I may hope to be able to lay claim to largeness of heart and sympathy, if you think I am entirely ignorant of the ways, pursuits and methods of the architectural profession, then, Sir, your Executive have caught a Tartar. I shall not attempt to justify myself in the position I hold. I will only say I appreciate it as a very great honour. In fact if I had been told-as a young fellow in my 'teens, when I was a youthful civil servant spending much of my spare time studying various ways and means and wondering whether the only thing I could do which would survive was not a certain gift for drawing, and how I could get into the architectural profession-if I had been told then that a time would come when I should be entrusted with this honour, I should have viewed the spokesman with scepticism. Yet such is the case. Having spent a great part of my leisure time over many years in those activities which occupy your days' work, I may claim to have at any rate a very lively interest, and some insight, into the technical position which you occupy. As a young man, my first published contributions were upon architecture, and they occupy some 40 articles on the subject of a pioneer field in the West Country, a volume which may be placed side by side with a monumental work on the historical monuments of Hertfordshire, when it is interesting to note how a field of architectural study which was then unknown to any except a few enthusiasts has got into the ful! blaze of popular knowledge and understanding. And from that date, when I had the privilege of receiving commendation for my work from no less a person than Francis Bond, to whom I was able to lend lantern slides, and when I formed many friendships among architects, who often wondered what a civil servant could find to enjoy in these subjects, my interest has been lively, and I have been a member of an Architectural Detail Association, which has kept that interest alive. It is true that modern business requirements have been heavy upon me, and I cannot now give the time to it, but your profession often lies closer to my heart even than the one which I myself follow. Your vocation is my avocation.

But I have a larger claim altogether to some knowledge of your profession and some power to admire it. I am not referring to my position at the Bank of England and the great architectural work which is going along slowly there and for which the directors have to take varying degrees of praise and blame; but if you look upon me as the head of a great railway, my interests in and contacts with your profession are continuous,

responsible, and astonishingly wide, apart altogether from the very considerable staff of qualified men who are included in my technical departments. The story of the contacts in economics and ideals between railways and architects would fill a large book, and an interesting one at that. To the man in the street the fulminations of Ruskin against railways may be the chief feature, but actually the history is deeper and more vital. Whether it is the responsibility for preserving against merely mercenary encroachment on architectural amenitics and beauties of the past, or the responsibility of reconciling the purely economic justification for new works, with their contribution to the elegance of the day—that is, whether it is in the destruction of the old or the perpetration of the new, whether it is the desire to avoid being either a vandal or a philistinefeel that I am up against the architectural judgment all the time. I saved Stratford House, one of the few remaining specimens of the sixteenth century half-timbered work in the Birmingham area, from being butchered to make standing room for about another score of trucks in the adjoining sidings, and I did that at the risk of being considered a faddist by my companions; also it was done at some small economic cost to my corporation. But it is another story, and I cannot claim such indulgence when I am told that I must on no account, in scheming out ideas for a great new terminal, touch the noble proportions of the Great Hall at Euston. Vain are my struggles to invent any plan for a new Euston which will not involve the destruction of that Hall! With the sight of Carlton House Terrace and the Adelphi in front of me in the papers daily I can hear the cries of those whose responsibility to sentiment and the æsthetic is greater than it is to my shareholders. In my struggles I receive noble help from my architectural friends, so much so that in the last picture I had of this problem of the Great Hall in which that Hall survives, multitudes of taxi-cabs were running through it from end to end, and the statue of Stephenson is looking down on the scene more sardonically than ever. How would you gentlemen like to be in my place with the responsibility for St. Pancras Hotel? I was nurtured in the faith of the architectural text-books of my youth, for I read them all. This faith proclaimed that this noble building of Scott's was the very last word in the happy association of purist Gothic forms with modern industrial requirements; a veritable object lesson, and still described as one of the wonders of London, Well, Lunderstand Lam the last remaining man, with the mid-Victorian spirit, who is sufficiently philistine and bourgeoise and altogether out of the running, to be an unashamed admirer of the Albert Memorial. I was told the story of a German who was visiting this country, and, in the course of a tour in a char-à-banc to see the sights of London, was told, "On your left is the Albert Memorial, on the right is the Albert Hall." And the comment which the German made was, "Why didn't they put the ornament on the cake?" Well, gentlemen, you will all remember how Sir Gilbert Scott, whose methods and ideals I, personally, still revere, was detained in London during the "dead" season, owing to the illness of a member of his family, solaced his enforced leisure by working on the design which gained the prize in an open competition. I believe the original plan provided for another floor, but with the financial

crash of 1867 the railway were constrained to rigid economy, and the transfer of their Derby staff, which had then been planned, had to be abandoned. The language of the day seems flamboyant enough: "The most perfect in every possible respect in the world," and "one of the chief architectural ornaments of the metropolis." We are further told that "The style of architecture is a combination of various mediæval features the inspection of which recall to mind the Lombardic and Venetian brick Gothic or Gothic-Italian types, while the critical eye of the student will observe touches of Milan and other terra-cotta buildings, interlaced with good reproductions of details from Winchester and Salisbury Cathedrals, Westminster Abbey, etc., while in the interior and exterior may be seen the ornaments of Amiens, Laon, and other French edifices, which, though a conglomerate, must have required great pains and skill to properly harmonise in order to produce so attractive a result." Here I am responsible, in less than 60 years, for a building which is completely obsolete and hopeless as a hotel, and even worse than useless for offices; will it be vandalism of the worst order to destroy it? How does it really stand in the eyes of the profession? Architecture shares with art, literature, poetry, rhetoric that dead reaction of smug superiority which comes after the lapse of from 40 to 60 years. The pre-Raphaelites we can put in dark corners or obscure places; Tennyson we can relegate to girls' schools, Froude can be superseded; Carlyle can be ignored, the rhetoric of Gladstone can be turned into a museum piece; but the architecture of that day we have to live with and use. We can either keep it for a revival of appreciation, with a dead economic loss for the site that it occupies and the use to which it is put, or we can pull it down and impose upon the site something that can be equally condemned in its turn in 60 years' time. Gentlemen, I shall be glad of your guidance on the whole duty of a railway

As I said earlier in my remarks, the story of railways and architecture is a long one. I may start with one of the earliest minutes I have at Euston, namely, in 1829, wherein it said, "The Engineer was informed by the Chairman that it was the wish of the Directors that the Railway should be completed with as little extraordinary expense in the way of ornament or unnecessary finishing as possible, and especially that the bridges yet to be built should be substantial, but perfectly plain and economical in their structure." Despite this, however, we can all agree that some of the early railways have a general excellence in that form of architecture which is now classified as engineering, masonry, tunnel arches, bridges and retaining walls, which may not always be reached to-day when such structures need only girders and formulæ. Do architects and engineers understand the rudiments of each other's crafts as thoroughly to-day as they did in 1838? We find that at that period the local Corporation gladly contributed to the railway expenditure on a new station at Lime Street in order to take their share in making the proposed structure an ornament to the neighbourhood and worthy of its design and object, Corporations to-day are more ready to prescribe exacting conditions for beauty and amenity than they are to join in the cost of providing them. I may be allowed to refer to a name which is well known in the economic world, Ricardo, giving an apologia to his shareholders for the architectural beauties of Stoke station. True, it cost only £30,000, as against £45,000 at Chester, and £90,000 at Peterborough. By a beautiful process of eliminating arithmetic, he capitalises £600 of rent for his London offices into £,12,000, making the cost of the station £18,000. He found the cost of the beautiful ornaments, about

which we hear so much, which was the stone work round the windows, £2,700. But if they had not had stone the would have had to have brick or wood. Take £500 for brick. There must have been copings and sills, take for this £70. There remains £1,558 as the price of the ornaments, which they might have saved by making the station one of the ugliest in $\frac{1}{100}$ and

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I could talk at length about the Euston arch, or shall I speak correctly and term it a propylæum? It is possible, as has been alleged, that one of the builders may indeed have said that a good station could be built at King's Cross for less than the cost of this ornamental archway. But the architect of King's Cross station claimed no architectural features for that work: he said it was to "depend for its effect on the largeness of some of its features, its fitness for its purpose, and its characteristic expression of that purpose." I strongly suspect that that is the chief architectural justification which can be held out for some modern buildings.

modern buildings.

But—to return to my arch—one of my advertising expens told me that he thought it ought to be covered with phosphorescent paint, and thus appear as a striking object at night. I do not know what its ultimate fate will be, I do not know whether it will always stand in its present spot. In this we have a specimen of Greek architecture on a grander scale than anything of the kind which has been attempted in this country, and free from admixture of styles which should affect or diminish the classical character of its design with a Grecian outline preserved entire. It is true that we have been told that the spirit of the perpetrators evaporated with the outworks, and what lies behind has always been unworthy. Now a tobacco shop nestles in the recess at the foot of it. Have I not heard about that? Am I not indeed already a vandal for that?

I suppose my work on railway architecture would also have to include the story of Sir Joseph Paxton, a Midland Railway director, for at his death the minutes bear this record: "We cannot forget that it was whilst attending a meeting of this board that the grand idea for the Crystal Palace, which has contributed so largely to his world-wide fame, appears to have entered his mind." That is the kind of thing we germinate at railway board meetings! Dare I claim anything for the enormous educational influences and consequences which have sprung from the inspiration of a railway board meeting. It may be the fashion of the day to hurl abuse at railway architecture, but I must ask you to be tolerant. Speaking as a railway chairman, I may tell you that tolerance is a virtue which the oppressed alone know how to define Moreover, the fashionable have the advantage over the unfashionable in nothing but the fashion. When railways were new and therefore were novelties, the critics of the day, like Kipling's friends at San Francisco, "ransacked the clouds of sunset, the thunderbolts of Heaven, the deeps of hell, and the splendours of the Resurrection for tropes and metaphors" in praise of railway architecture. Even the balanced and cynical mind of Thackeray was moved to poetry by the sight of the Crystal Palace when it was new:

Say, Paxton, truth,
Thou wondthrous youth,
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What power was lint
You to invint
This combinection crystial?"

In recent years a lady shareholder wrote on the subject of covering our walls with frescoes:

"I know the railway has often been said to be managed by men without much education, many have risen from the ranks of office hoys. Not that I, as a democrat, think any the worse of them. yet I think that generations of education do tell." Gentlemen, if I have not moved you to tears, I have at any rate done something to establish my claim to be the proposer of this toest. You will not accuse me of having no imagination. I know there are some men who have just enough imagination to spoil their judgment. When I hear architects talking, I take a little secret solace at the gibe I so frequently hear, that "Economists always differ."

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But in proposing this toast I am bound to say I think of it in terms of kindred associations, and where it stands in its ideals. If you follow the evolution of technical societies you will see that your professional technical society and institution has got further along the path of that evolution than most. As a general characterisation one may say the purpose of these instinations is to provide orderly standards of entry into its profession, a public guarantee of competence, for the interests and welfare of the members and their protection. That is a very excellent beginning. But if they are worthy of their place they pass to the next stage: the raising of the general standard of their work, and particularly the scale of professional honour and a high standard of training for new entrants into the profession, and the machinery for providing that training. New entrants complain, indeed, that the persons who examine them, if they had had to pass this modern examination thirty or forty years ago, would not now be in the profession! That is the average plea of the average young man in all professions. It is almost like the case of the restaurant in Texas, where they put on the wall a notice in these words: "If you think the steak is tough, clear out, we want no weaklings here." In the third stage in the evolution of such societies they become the vehicle for new thinking, the constitution of focal points for the approach from outside-the Government or some other outside body who wants to know what the profession proposes to do about a particular matter or thinks about it. They naturally come to the headquarters of the profession. It is the most representative form of expression for outside enquiry, and it is the best way to canalise and concentrate widespread opinion among its members. It forms a most useful central point at which these things can be reached.

The fourth stage is where they have a definite goal and ideal of public service. Not all institutions have reached that stage where they have a share in all questions of public activity. And when I look at your great Institute from that point of view I find you have reached a stage in public affairs which is almost baffling in its wide range. Your President, in his innumerable activities, shows how wide are the interests touched by your profession, and the number of matters in which you are taking a lively and responsible place. We think of the economic problems which are foremost to-day: housing, slum clearance, and so on; we recognise that the voice of the architect is heard in the land, and we are thankful that it is so, and we hope he will continue to play a predominant part in all the matters in which he has the most commanding experience.

The question of town planning and regional planning we hope will save our England from becoming what it might be, a ghastly mass of buildings, and result in the preservation of the amenities, artificial and natural. And I wish, as a member of the Board of Pilgrim Trustees, to say how glad I am that it should take a share with the architectural profession in the preservation of those amenities and of those characteristics of England which are known over the English-speaking world. And there is that tremendous responsibility, the creation of new public buildings, which will be worthy of the period, and make this age one of which we should be proud.

You gentlemen have a library which is the Mecca of scholars all over the world, and you enlighten school boys and school girls into the meaning of architecture; there is a constant succession of free exhibitions of a varied kind, and there is public recognition of special achievements by means of the Royal Gold Medal, and also a medal given by your Institute for good new buildings. These form an imposing summation of public interest, service and responsibility, and I congratulate you upon them.

It is almost a work of supererogation to drink your health; you are of such astounding vitality that it hardly needs any assurance; but the price of liberty is eternal vigilance, and that no less in art than in the field of politics. Beauty is an index of a larger fact than wisdom, and you stand for both, but preeminently for beauty and for originality, a thing we are always clamouring for and as constantly quarrelling with; and you have to have the courage of your convictions, and not be too thin-skinned in regard to short-sighted public opinion. Many new instruments have come to you. Whereas mediæval builders were limited to stone and brick, you have steel, concrete, glass, chromium, and you do not know what amount of originality is possible with them now. Talking of glass, may I venture upon a little diversion? An acquaintance of mine, of London University, has two daughters, twins, aged 15. One entered for a School Certificate examination and was set to do essay writing on the English paper. The question was: Finish the following proverbs and write an essay on one of them. The first half of each proverb was given and the only one she knew was: People who live in glass houses. She knew that, simply because some ribald person had sent to her home the previous Christmas an almanack which said "People who live in glass houses should undress in the dark." This young lady therefore duly wrote the essay. Her parents wanted to know how she got on, and when she told them what answer she had given they were horrified, and concluded that complete failure must be her lot. But she got through. Evidently the examiners were so much attracted by the ingenuity of the answer, or so preferred

In proposing this toast my last word is to ask you to remember that the appeal of this country, in this great international association which is coming upon us in travel and communication—the appeal of the country lies in two things: the beauty of its country, which is God-given, and the nobility of its towns, which are man-made. When I think of your responsibility I tremble for you. The mistakes of the lawyer can be over-ruled, the mistakes of the painter can be put aside, the mistakes of the doctor can be buried, but the mistakes of the architect remain with us and endure. On the other hand, the glory of the lawyer may be out-moded by circumstance, that of the musician may be dependent on future executants, the glory of the singer, the orator and the actor fade into mere tradition, but the glory of the architect endures, and your privilege is that your imagination enriches all.

this revised version, that they gave her the benefit of it.

I give you, ladies and gentlemen, the toast of the "Royal Institute of British Architects and Allied Societies," and I couple it with the name of your president, Sir Raymond Unwin. The toast was cordially given.

The PRESIDENT, in responding to the toast, said: My lords, ladies and gentlemen, it is indeed a very great honour to be called upon to reply to the toast of this great Institute; it is a particular pleasure to do so when it has been proposed in such an interesting, thoughtful and humorous address, an address which is most revealing; and I am glad to say I feel that I have learned something. I have learned how it is that Sir Josiah Stamp has become such a great man, a man of so many

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parts; it is because he very nearly became an architect. That is his own confession and his own explanation, and I am sure we may all take encouragement from it.

He has spoken of buildings which have grown up and been praised in their time, and have then become out of date, and he speaks of their having to be replaced in 60 years' time. Well, for some buildings that would be a disaster, but for others, I am bound to say, it is at any rate good for the builder and the architect! I am replying not only for this Institute, but also for the Allied Societies. We have, as you know, an organisation throughout the country. I am not going to trouble you with details, because Sir Josiah Stamp has already pointed out many of the activities of this Institute. There are just two things about which I should like to say a word or two. One is the work of our Unemployment Committee; we have been troubled with unemployment, like other people, and we have brought here to show you some of the work which has been accomplished by our unemployed architects, under the able direction of Mr. Maurice Webb, whose absence to-night through ill-health we regret. Mr. Maurice Webb has made an opportunity of the disaster, and if you look at the few samples of work done I think you will see that we have made one of the most complete and valuable surveys of London that has ever been made. We have practically covered the ground, and have mapped out the regions. We have put more information about this great city on that map than has ever been given in this form before. That will be a most valuable basis for any work of planning or re-planning, re-construction or re-housing which has to be carried out here. We have done that as a means of finding something for those to do who would otherwise have been idle. We have done work for which we should not have had time under normal conditions.

The other point I want to make is that we are going on with our own building, because we believe it is good business to proceed with it now. I was much interested to see, on the model which has been prepared, a view of St. Paul's Cathedral, and I think that is important, because, as far as I can see, it will not be long before the only view of St. Paul's which will be left will be the one which will be carved on the entrance door of our new building. It is not only the destruction of buildings which is a misfortune; it will be equally a misfortune if we destroy the views of those buildings which we have learned to

There are some curious ideas about economy in these times. It is very rash of me to-night to trench on the economic sphere, and therefore I will only do it in the form of a question. If you look at one or two of the maps in the Hall outside you will see how far the Ordnance Maps of this country have been allowed to fall into arrear. One of the things which our unemployed people have been doing is to bring these Ordnance Maps up to date. We have hundreds of men who are competent to keep those maps up to date who are walking about or staying at home doing nothing and wanting employment. I ask economists, "Is it economical that we should allow what is probably the finest Survey in the world to go out of date, while we have men capable of keeping it up to date walking about doing nothing?" If so, it is a species of economy at which I am puzzled. We are also fumbling about and considering whether we shall build any more houses. I ask, again, "Is it true economy that we should pay £70 to men who might build a house to do nothing, instead of, by that expenditure, contributing towards the cost of relieving some overcrowded family? If so, that also is an economy I do not understand, and I am very glad to be able to tell you to-night-and I hope I am not

revealing any secrets when I do so-that the great City of London has come to the same conclusion as we have: that some saving is bad economy. I understand that a motion, promoted by my predecessor in this Chair, Sir Banister Fletcher, has been carried in the City Corporation to the effect that they will now undertake the reconstruction and improvement of the Guildhall, at a considerable outlay, an item of work which they had intended to do before the War, and which has been hanging fire ever since. Well, gentlemen, I think that perhaps truer ideas on economy are rapidly spreading. Our little building which we shall put up for the Institute will, I calculate, save £20,000 in unemployment payment. I am afraid we shall not get that £,20,000; we shall have to pay £100,000 for the building, but £20,000 will relieve the common pocket, and will

represent considerable economy. Now I am coming nearer home. There are some who seem to think that to try how small is the room, how cramped the dwelling into which a family can be squeezed, is another form of economy. My tailor once practised that kind of economy on me: he made me a suit of clothes by which he saved a few inches of cloth. The result was that every time I moved a little too energetically, or dined too rashly, I found a split somewhere in that suit, and in consequence the repair bill became a heavy one. I think it is very easy to save 20s. a year by making a staircase too narrow, a lobby a little too small, and a larder too small to hold a decent piece of beef, but, in the result, you may add 25s. a year to the repair bill of that cottage. You have to combine a good deal of imagination with your science if you are to get sound economy. It fell to my lot to hear, the other day, of a case in which eight houses have been erected to the first floor, and when the architect went down to the job he found, instead of a good bitumen damp-course, which had been specified, something like paper had been inserted; no doubt the paper was smeared with something. But that paper had to come out. I do not think there was economy in that instance. I say to all branches of the building industry that there is still something for us to do in reorganising our industry. I think Sir Josiah Stamp would be very much surprised if anybody suggested that the Bank of England was entitled to issue counterfeit notes with their name on them; but if a reputable maker of a good damp-course issues paper and puts the name of his firm on it, he is getting very near to issuing a counterfeit note, and I should like to see that kind of thing abolished throughout the building industry.

One other point I want to mention is in regard to the Board of Architectural Education. We have done a great deal, as you, Sir Josiah, have already mentioned, to promote the education and training of architects, that they may render better service. I should like to pay tribute to the work which Professor Reilly has done in Liverpool; I mention his name because we all regret that failing strength has required him to surrender that work at too early a date. We have had many great Chairmen of our Architectural Board-not least Mr. Ansell, who occupies that position at present—and we have provided good opportunities for the architect so far as he depends on his training; and so far as he depends on his inborn gifts, we have provided encouragement to develop and foster those. The best thanks to anybody who has done a good job is to give him one a little higger to do; and we have a still bigger job for our Architectural Board; that is, to see that there is a public who will understand and support good architecture, will have knowledge enough to apprise and value good work, and taste enough to appreciate good design.

That brings us to a bit of a puzzle. When the speculative

builder and the purchaser meet, who is it that settles questions of taste? Who is it that determines the taste in bonnets? Is it the milliner, or is it the wearer? That is an interesting philosophical speculation. I saw one the other day, for instance, where one eye of the lady was left in strict functional nakedass, while the other was discreetly shaded with the traditional him or cornice. It is important for us to know who fixes the paste in villas: is it the builder, or the purchaser?—I am sorry to ay the architect seldom has any chance. If we knew, we could cultivate the taste of the right party. What is taste? That question is even less easy to answer than is Pilate's famous question: "What is truth?" It cannot be taught, like 2 and 2 make 4. I bink that taste is an element in our culture; it is a compound fintelligence plus feeling, a susceptibility to appropriateness of relation and to beauty of proportion. Some are more suscepble through the ear; they have a taste in speech, like the mover of this toast, they have taste in poetry, taste in music. Some are moved by form; there are some to whom colour speaks more dearly. Intellect demands in our work scientific integrity, appropriateness to purpose, efficiency in function. Science is a young and nimble sprite, full of curiosity, skipping from one invention to another, promoting material progress. But that anot all of life. Culture comes with more ancient endowment; tis part of the racial tradition, born and bred in us; it is part of a long inheritance, of intimate association, of intellectual appreciation and emotional endowment. All that is bound up in what we call taste. It is the result of long reactions to life thas become part of our human nature which nourishes and atisfies what of spiritual nature we may happen to have. There are, then, two influences in our work; there is the desire for satisfaction, for material progress; there is also the desire for a fuller realisation of beauty, a fuller enjoyment of the culture we have inherited or accumulated. To-day the task is very difficult for the architect; he has to try to find an expression for rapidly changing functions in terms of rapidly developing structural science; and to find it in forms and proportions which are not too needlessly novel to appeal to our sense of beauty, that sense of beauty with which our traditional culture has endowed us. That is no light job for the architect of to-day, and suggest that no solution on the lines of the bonnet to which I have referred is a satisfactory solution to that problem. I am glad to think that in our new building we have found a solution which is a somewhat better way, and I hope that when that building comes to be erected the public will agree with me.

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I think, therefore, in view of the two sides of this difficulty, that we may, not unreasonably, appeal to those who are young in our profession, whose associations and traditions have acquired but a slender hold upon them, that, following the new things and the new ways, they should try not to be needlessly stark in their expression of function; and, above all, that they should be careful not to mistake starkness for function. And I think that we older ones may put to ourselves a similar appeal: that those of us upon whom association and tradition have acquired a firmer hold should take care lest we cling to forms when the purpose which gave rise to them has vanished. There is more in tradition, more in the intimate association and effect upon our personality of the repeated impacts of beauty, and emotion arising from beauty, than younger zealous people can quite understand; they will grow into it as they become older. We both need to try to understand each other's point of view. We need to understand the other man's point of view, not that we may "down" it, but that out of his and ours combined, we may make a more complete whole. But I am reminded of a response given to the last after-dinner speech which I had the honour to make. A gentleman rose and, in the course of his speech, said "If the parson in our village church talked like that, I would go and hear him sometimes." If I am a little inclined to be parsonic, I will at least claim that it is not because I am depressed or pessimistic; it is, on the contrary, that I am an optimist, and I see, in the present conditions and the present time, opportunities and prospects greater than I have ever seen in my life before, and I cannot resist the temptation of begging you to take them. We are not quite blind to the lighter side of life; in our Institute, I am glad to say, there has been started a Social Committee, which is ably presided over by Mrs. Lanchester. On Monday next there is to be a Dance at the Institute, to commence at nine o'clock, and the cost will only be six shillings. I hope we shall gather there, and if I have been too serious to-night, we may be frivolous then, and I can promise you there will be no sermon on that occasion.

I thank you for the cordial way in which the toast has been proposed, and for the way in which you have accepted it.

Mr. H. S. GOODHART-RENDEL, F.R.I.B.A., in submitting the toast of "The Guests," said: Mr. President, your Excellencies, ladies and gentlemen, this festivity is called familiarly "The Architects' Annual Dinner," but things are not quite as bad as that. On no other evening, however, do we meet in such numbers, or look so nice, or honour ourselves with the presence of so many eminent and distinguished guests. In fact it is what is called "an occasion."

"Occasions" lead to speeches; no exercise of human ingenuity has yet been able to frustrate that natural law. I therefore have to expand what we architects would call a very small programme into something that can decently be called a speech. My function is to propose that we drink the health of those ladies and gentlemen it has been our joy to entertain to-night and to say how charming we think it has been of them to have come and to have made our dinner a success. Beyond that, amplification is difficult if it is not to take the rather perfunctory form of a catalogue of the many distinguished people we have here with us. One or two observations, however, are perhaps worth making that are suggested by the professional affinities we have with some of our guests.

Lord Dawson of Penn and Sir Holburt Waring, for example, need, I am sure, no telling how greatly we appreciate their presence, and perhaps having so eminent a doctor and so eminent a surgeon with us, we should not miss the opportunity of recollecting for a moment how closely our profession should co-operate with theirs. By this I do not mean that we should build houses in such a way as to be sure, sooner or later, to make work for the doctors; nor do I mean the less noxious but still questionable practice of plastering fancy façades on to the poor old houses in Harley Street. What I mean is that in the prevention of avoidable disease, which must be the paramount aim in modern enlightened medicine, the architect can supply an environment without which all efforts would be badly handicapped.

In the environment of his work I think Mr. Malim, the Headmaster of Wellington College, has no reason to complain of the architects of the past. The old buildings of Wellington, designed, paradoxically, almost in the Norman Shaw manner by another architect named Shaw, who happened to be born first, is very much more to our taste than are most Victorian school buildings, and I hope such agreeable surroundings may induce an appreciation of, and perhaps an intention to practise, architecture among many of the boys in his charge.

Mr. Eve, the President of the Chartered Surveyors' Institution, is another of our guests, and it is no good to try to impose

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upon him our own estimate of our merits and our importance, because he knows us very well as we are. The time is not long past when on brass plates the words "Architect" and "Surveyor" were more commonly joined than separate, and if now they are dissociated, the dissociation is one in function but not

one in sympathy.

Nor is there a dissociation in sympathy between architects and the Office of Works, as is proved by the presence here of Sir Patrick Duff, and would have been proved also by the presence of the First Commissioner if he had not been unfortunately prevented from coming by sickness. Of course, we independent architects think that our fingers would greatly improve the flavour of many an official pie into which we are not invited to dip them. In spite of that, with great sincerity, we can offer congratulations to Mr. Ormsby-Gore's staff both upon the lavishness of their opportunities and upon the frequent excellence of their productions.

The "noble patron of other days" is dead, and artists now must look for their patrons among those who need art as an implement in works of public service. Mr. Frank Pick knows that good art pays, and knows good art when he sees it, and sees that he gets it. There can be only one Mr. Pick, but we

hope he will have many imitators.

Last, but "not least"—that would be an absurd understatement-let me say last but most gratifying of all, we have the honour of entertaining here His Excellency the French Ambassador. The debt of architecture in general to French architecture through the ages is so enormous that it cannot be forgotten. France, the cradle of Gothic Art, the home of Mansart and of Gabriel, the source of systematised architectural education, the land of the pioneers in reinforced concrete construction; her record is as insuperable in architecture as it is in many other of the arts of civilisation. To imitate elsewhere her so national architecture is foolish; but to imitate her intellectual attitude toward architecture, her adventure, her sense of the appropriate, her perfect taste, is, for the architect, the only true wisdom.

I propose the health of the guests.

It was cordially pledged.

Mr. F. B. MALIM (Master of Wellington College) responded to the toast. He said: Mr. President, your Excellency, my lords, ladies and gentlemen, the really poignant mental conflict is not that which is aroused in us by the clash of inclination and duty, but that which arises when we are assailed by two incompatible categories. I made up that appalling sentence not in order to show that I am still capable of articulation in spite of your hospitality, but as a kind of introduction to a simple memory, a portico in front of a humble building. I recollect very well the case of two sisters who went to a children's party, and at the moment of their deliverance they stiffened then selves for the necessary effort. They went up to their hostess and said "Thank you very much for our nice party, we have enjoyed it very much." So the first imperative had been satisfied. They went to the door feeling that their duty had been duly accomplished. Then the second imperative became active in their uneasy conscience. They conferred at the door, and one of them very resolutely, with a pink face, turned and said to the hostess, "What I said just now is not true, we have not enjoyed ourselves a bit." No such conflict arises in the mind of the guest who is fortunate enough to have to say to you, Sir, "Thank you for my good dinner," for I am certain I am speaking for the other guests as well as for myself when I say we are enjoying ourselves very much.

It is a real pleasure to spend an evening in the company of

men who are masters of their craft, particularly when that craft is not our own. There is the chance of getting things seen from a new angle, and hearing the unexpected in conversation. A friend of mine who has recently returned from another country told me the other day of his experience there. \n important appointment had been made, and it was one which had met with criticism. A certain man, who was active in the matter, took the opportunity at dinner of saying to the lady on his right that he thought the man who had received the appointment-we will call him Mr. Perkins-was not the man for the job, that he had not the courage required. The lady replied, "Do you know who I am?" "No, Madam." "Well, I am Mrs. Perkins." "Do you know who I am?" said he. "No, I do not." To which his retort was "Thank God!" That illustrates this element of the unexpected, which I do not always find at the meetings of the Headmasters' Conference. But it is not only that you look at things from a different angle, but that you are masters of your craft. If I were dining, as I have done occasionally, with the Fishmongers' Company, it would not be tactful to ask my hosts the price of kippers, or about the peculiarities which distinguish the real from mock turtle. But to-night-and it is a sobering thought for a speaker-I am addressing an audience which probably contains the biggest collection of authorities in England on dry rot. I have sometimes thought that there is, after all, some affinity between your craft and mine, though the metaphor is perhaps largely now outworn. We talk about "building up" character, about "laying a good foundation," about getting boys "well grounded." When people have told me they wish their boy to drop some subject, I have said, in a moment of exasperation, "Madam, you have only the scaffolding so far, we have yet to begin building," But it is not a very good metaphor, and some of it, like that word "edify," has gone out of date. Edify only means to build, but it has been used so constantly that we have come to regard it as a sort of jerry building, and have had to leave it out of our vocabulary. The real difficulty concerned with our craft is this. You know-I hope at any rate that you know-what your raw material will do. When people recommend to me the use of Portland stone, or brick, or other material. I always hope they have some idea of how the material they are recommending will behave; but I defy anybody to be sure of how the ordinary human boy will behave; it is the one thing which makes him both so attractive and so exasperating, and it does not make him very good building material. So we have fallen back on a biological metaphor, and we talk about training, growth, and so on. I often imagine that a rather interesting book might be written on the architecture of our public schools as examples of what to avoid, as well as what to imitate. Some of the public schools have been started by the simple method of taking a large country house—one singularly ill-adapted for the purpose-and converting it into a public school; examples of that are Marlborough, Radley, Stowe. At Stowe there were 340 bedrooms and only one bathroom. There were two, but the authorities had been unable to resist the logic of the argument that there was only one Duke of Buckingham, so there was no need for more than one bathroom. Haileybury was crected for the education of Indian civil servants. After the closing of the company that large building was for some time lying derelict, and various people had schemes for dealing with it. It was at one time suggested that it should be turned into a barracks, others said it would make a good workhouse, while a third party was in favour of it being used as a lunatic asylum. A printer of Hertford had a brilliant idea; he said, "Why not combine all those three purposes and

jurn it into a public school?" And that was done. Years later Sir Arthur Blomfield built above the classical front the dome for the new chapel, and gave the occasion to Butler to make one of his happiest quotations, "Diruit aedificat, matat quadrata notundis." If you translate that you will find it was a very good oke. If you take the buildings which were built for the purpose hey were intended to fill, they form an extraordinarily intersting record of the changes in architectural taste. The Gothic Revival fell upon us with extreme severity; some schools were dmirably adapted to resist the smaller siege engines of the dirteenth century. But at Wellington it seemed incongruous commemorate the Iron Duke with a portcullis and machicoations, and Shaw hit on the happy idea of commemorating the Duke with a French château to recall the lighter moments that e had spent in that country. The first Master of Wellington ods Dr. Benson, and he was a purist. The purist of one age is lways the mockery of the next, and he was not going to have a French Chapel of the eighteenth century, so we still worship n a building of the early Scottish style. It harmonises very ill with the bull's-eye windows and Mansard roofs of the major art of the college.

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But if you want to see a country where the school architect has a real chance, you should go to the United States of America. When I went out there, some years ago, I was taken to see various new and developing secondary schools, and very interesting they were. Two in particular were great rivals, and each of them had a millionaire who was interested in his particular school, and one was not going to be outdone by the other. If one gave a hundred thousand dollars for a special purpose, the other gave to his school one hundred and twenty housand dollars. And so there were museum, gymnasium, covred playground, and so on, sprouting all over the place. One of them removed a boarding-house and put it one hundred vards further on, merely to improve the view. A lady was ment on commemorating at Yale a youth who fell in the War, and when the lady was interviewed she was asked, "Any limit?" and she replied, "No limit whatever." I am glad to by that the architect was true to the traditions of your craft, The eventual bill which came in was for nine million dollars.

I think I began by saying "Thank you." I said it at the beginning because I have noticed often that people who reply for the must are so anxious to tell the story they have carefully prepared that they forget altogether to say "Thank you." It is a sood note to end on, and I should like, on behalf of my fellow must and myself, first to thank you for your hospitality, and secondly to assure the gentleman who proposed the toast, of our felings of gratitude to him for the cordial way in which he

Mr. C. GERALD EVE (President, the Chartered Surveyors' Institution) also responded to the toast of "The Guests." He said: Mr. President, your Excellencies, ladies and gentlemen, it is said that there are two kinds of guests: the perfect guest and the perfect pest. The first is short in his remarks and says "Thank you very much for my good dinner, for the nice wine, and for the very pleasant company." The second sort is long, inclevant and often irreverent. It was he, no doubt, of whom longfellow was thinking when he wrote "Speak, speak, thou learly guest." My intention and desire is to be very short lonight, but what after-dinner speaker ever gets up without such in intention? Therefore, from experience, I can give you no guarantee as to that. I was proposing a toast last night in Glasgow, and in the middle of my speech I was looking at the reiling in the hope of getting some inspiration, and to my horror I saw that, with Scotch thoroughness, the entire ceiling had

been covered with a system of sprinklers, and in instant alarm I sat down. To-night you are not so fortunate. On this occasion your guests are enjoying the hospitality of the architects. There seem to me to be several grades in the ranks of the hierarchy. First, there are the archangels, then there are the archbishops, and I hope I shall cause no offence if I place them a little lower than the angels. We have the archdean, who puts the cart before the horse, and is called the "Dean of Arches," and then we have the archdeacon. And it remains for me to classify the two last: the architect and the arch-fiend, and I have no hesitation, in the present company, of placing the arch-fiend last, and thus adding one more to the sorrows of Satan. I regret we have no arch-surveyor; though we try to look a little arch in the witness box when we are severely cross-examined. And while on this more or less religious subject, I am reminded of the teacher who very kindly took her class to a neighbouring town for a trip, and the outing included a visit to the Cathedral. They all explored fully the tombs and monuments, and, after a long and tiring day, they returned by train. The teacher entertained them by telling them Bible stories, but they were so excited by the day's events that they did not pay sufficient attention. On reaching home, one of the girls was telling her mother of her experiences. "Mother," she said, "we have been over the tombs-I forget whose tombs they were, but I remember one was William and Mary Queen of Scots, and the other was John the Baptist." She told her the teacher said to the verger, "Why are so many people walking all over the cathedral? Do not any people come here for devotion?" And the verger replied, "Oh, yes, miss, I caught two of them last night!" Then the girl said to her mother: "Mother, Sodom and Gomorrah were never properly married; and our teacher is an aristocrat, and comes of very good people; they were in iron and steel." And the mother said, "Yes, I knew them, she did the ironing and he did the stealing."

Your guests are greatly pleased to come to your festive board to-night, and to express to you their sincere goodwill, in these days of depression. We hope that the shadow of economy which has arrested the quantity of building work may be lifted when times improve. I feel it is doing a great honour to my institution that you have asked me to respond to this toast. I do not know what the reason is; the only reason which did occur to me-but I at once discarded it—is that we are perhaps the only three in the company who were expected to be able to stand on our feet at this stage of the proceedings. And if my fellow-guests are dissatisfied with the response I am making, I would remind them that while they have been enjoying their dinner with every nerve at rest, I have been quivering for the last twenty-four hours trying to think what to say, with a mind quite atrophied and gasping for inspiration, and to-morrow I shall be pursued with remorse thinking of the champion things I might have said.

In the old days, when bricks, stones, slates, tiles and timber were about the only materials the architect had to work with, some of us can just understand how an architect could learn so difficult a profession. But in these days, with such a variety of materials employable, and all the new conceptions of art and design, it is a surprise to us that anyone can succeed as you gentlemen do in grasping the problems over such a wide range as you do in your profession.

May I, in conclusion, congratulate your Institution on the very high repute in which it stands with other institutions, and particularly with the whole public at large, and pay our tribute to your President for the excellent example he has set, and the eminent leadership he has given, not only to your

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Institution, but to the country at large? I thank you, Mr. Goodhart-Rendel, for the kind way in which you have proposed this toast, and you, ladies and gentlemen, for the cordial way in which you have received it.

Mr. FRANK PICK, LL.B. [Hon. A.]: Mr. President, your Excellency, my lords, ladies and gentlemen, I may add my word of thanks to those which have already been expressed. We have had an excellent dinner, a statement in which all the speakers concur; I certainly have heard no complaints; and we have had as well most varied fare in the way of speeches, spiced with humour and garnished with fancy. Perhaps I may be excused, as a sort of grace after meat, for being a little plainer? I look past the occasion to the Institute that makes the occasion. I give thanks to the architects. I ought to thank them for the fact that I am here on this occasion; they afford the setting in which we are placed; the setting of our civilisation. They have interpreted their title more narrowly than they need; they should be not only the master builder, but the master craftsman; we should then be able to render them more thanks even than we can now.

If you go to Copenhagen you cannot help being struck with a sense of orderliness about that city. It is due to the fact that the architect not only designs the buildings, he also designs the omnibuses, the tramcars, the street signs, the street lighting and other equipment, so that you have a sort of family likeness about all the public aspects of the city, which build up into an impression of civilisation which rather differs from that which one may get from the disturbed and confused streets of our own city of London. I should like our architects to have that wider opportunity and that we should cultivate a spirit of consultation on a wider basis than we do now. But everyone thinks he can design without assistance or training. I admit it is strange, but

I am astonished at the number of traffic experts who exist in London, and the architects, I have no doubt, feel the same about the large number of persons who feel themselves competent to design.

Yet I am not unmindful that when you call in an architect there is always the likelihood of trouble. There is the case of Carlton House Terrace: some of us are not agreed that it must come down. But we must largely build to destroy so that we may build again. Yet we dare not pull that down now because we do not know what we shall get in its place; whether we shall get a modernised version of St. Pancras, as Sir Josiah Stamp has mentioned this evening, or some variety of Renaissance architecture or a Baroque affair, or whether we may not have a strictly utilitarian architecture which goes abroad by the name of Functionalism. We have had to form a Society for the Protection of Rural England, and now another Society for the Protection of the Amenities of London; and we might be even more thankful to the architects, if we might find in them some tradition which would establish a Twentieth Century English Architecture, and thus simplify a good deal the problems of building which beset us.

When I was on the Charing Cross Bridge Committee it was not so much a question of deciding upon the traffic aspects as of deciding between a series of plans for a series of bridges by a series of architects, and they cannot all have been right.

I would like to take this opportunity of asking the architects to secure for us this tradition, and to see that there is a Twentieth Century Architecture. And then, Mr. President, I could offer a final word of thanks to your Institute, much exceeding the thanks which as guests we tender for your kind hospitality this evening.

The following is a list of the company present:-

Sir Raymond Unwin, President R.I.B.A., in the Chair, and Lady Unwin; The Rt. Hon. the Countess of Listowel; The Rt. Hon. Viscount Esher and the Viscountess Esher; The Rt. Hon. Viscount Lee of Fareham, P.C., G.C.B., G.C.S.I., G.B.E., [Hon. F.]; His Excellency the French Ambassador (Monsieur de Fleuriau); The Rt. Hon. Lord Balfour of Burleigh; The Rt. Hon. Lord Wolverton; The Rt. Hon. Lord Arnold; Mr. John W. Dulanty, C.B., C.B.E., (High Commissioner for the Irish Free State); Mr. W. Spens, M.A., (Vice-Chanceller, The University of Cambridge); Sir William Llewellyn, G.C.V.O., [Hon. F.], (President, The Royal Academy); Major-General Sir Fabian Ware, K.C.VO., K.B.E., C.B., C.M.G., [Hon. A.]; Sir William Reynolds-Stephens, [Hon A.], (President, The Royal Society of British Sculptors); Sir Holburt J. Waring, C.B.E., (President, The Royal College of Surgeons); Sir Edgar Bonham-Carter, K.C.M.G., C.I.E., and Lady Bonham-Carter; Sir William Rothenstein, M.A.; Sir Patrick Duff, K.C.B., C.V.O.; Sir William Wells, D.L., F.S.A., F.S.I., and Lady Wells; Sir David Milne-Watson, M.A., Ll.B.; Sir Josiah Stamp, G.B.E.; Sir Harold Bellman, M.B.E.; Sir Walter Lawrence, J.P.; Sir Duncan Watson, M.I.E.E., J.P., and Lady Watson; Sir George Clausen, R.A.; Mr. Alderman and Sheriff Charles H. Collett; Lt.-Col. T. C. R. Moore, C.B.E., M.P., [Hon. A.]; Lt.-Col. J. Baldwin-Webb, D.L., J.P., M.P.; Major-General R. L. B. Thompson, C.B., C.M.G., D.S.O., (Director of Works, War Office); Brigadier H. St. J. L. Winterbotham. C.M.G., D.S.O.; Mr. Walter Lamb, M.V.O., (Secretary, The Royal Academy); Mr. C. Gerald Eve, F.S.I., (President, The Chartered Surveyors' Institution): Mr. G. S. Harding (President, The National Federation of Building Trades Employers); Mr. R. M. Holland-Martin, C.B., F.S.A., [Hon. A.], (President, The Architecture Club): Mr. Thomas Howarth, J.P., (President, The Institute of Builders); Mr. Thomas Barron, J.P.,

(President, The National Federation of Building Trades Operatives: Mr. Alan E. L. Chorlton, C.B.E., M.P., (President, The Institution of Mechanical Engineers); Mr. A. B. Knapp-Fisher (President, The Architectural Association) and Mrs. Knapp-Fisher; Mr. F. Longstreth Thompson, B.Sc., F.S.I., (President, The Town Planning Institute); Mr. Charles E. Barry, LL.D., (President, The Law Society; Mr. H. Mordaunt Rogers (President, The Auctioneers' and Estate Agents' Institute of the United Kingdom); Major A. D. S. Rice (President, The London Master Builders' Association); Major Harry Barnes, F.S.I., (Chairman, The Architects' Registration Council of the United Kingdom); Mr. Frank Pick, LL.B., [Hon. A.]; Mr. F.B. Malim (Master of Wellington College); Professor Oliver M. W. Sprague; Mr. H. S. E. Vanderpant, [Hon. A.]; Mr. H. Greville Montgomery, J.P., [Hon. A.]; Mr. Charles Marriott, [Hon. A.]; Mr. J. S. Wilson, M.Inst. C.E., [Hon. A.]; Mr. J. C. Squire, [Hon. A.]; Mr. W. G. Eaton; Mr. Norman H. Walls (Secretary, The National Federation of Building Trades Operatives); Mr. F. R. Yerbury, [Hon. A.], (Secretary, The Architectural Association); Mr. E. R. Cook, C.B.E. (Secretary, The London Master Builders' Association); Mr. B. R. Robert (Secretary, The Building Industries' National Council); Mr. W. J. Rudderham (Secretary, The London Master Builders' Association); Mr. H. G. Griffin (Secretary, The Council for the Preservation of Rural England); Mr. W. L. Wood; Mr. W. I. Plume, [Hon. A.]; Mr. Fred May; Mr. F. E. Wentworth-Sheilds Mr. C. McArthur Butler (Registrar, The Architects' Registration Council of the United Kingdom) and Mrs. McArthur Butler; Ms. E. H. Mann, M.A., (Secretary, The Architects' Registration Council of the United Kingdom) and Mrs. McArthur Butler; Ms. F. B. Mann, M.A., (Secretary, The Architects' Registration Council of the United Kingdom) and Mrs. McArthur Butler; Ms. F. B. Mann, M.A., (Secretary, The Architects' Registration Council of the United Kingdom) and Mrs. McArthur Butler; Ms.

MacAlister.
Mr. and Mrs. Bryan Adams: Mr. F. B. C. Allen; Mr. E. H. Allsford: Mr. W. H. Ansell, M.C., (Chairman, R.I.B.A. Board of

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H. d of Architectural Education); Architect and Building News; Architects' journal; Mr. James A. Arnott, F.S.A. [Scot.], (President, The Edinburgh Architectural Association; Mr. and Mrs. Henry V. Ashley. Mr. B. Baden, M.C., and Mrs. B. Baden; Mr. F. G. Baker; Mr. onard Barnish (President, The Liverpool Architectural Society) Mr. John Batty; Mr. John Begg (President, The Royal Incorporation of Architects in Scotland); Mr. and Mrs. S. Benham; Mr. E. C. Bewlay Vice-President R.I.B.A., Chairman The Allied Societies Conference) and Mrs. L. C. Bewlay; Mr. Eric L. Bird; Mr. Walter Brand; Mr. ad Mrs. A. E. Brittenden; Mr. Herbert T. Buckland; The Builder. Lt.Col. H. P. Cart de Lafontaine, O.B.E., T.D.; Mr. E. J. Carter, Mr. helbadar. Lt. Col. H. P. Cart de Lafontaine, O.B.E., T.D.; Mr. E. J. Carter; Mr. and Is, A. N. Cathcart; Central News: Mr. Challon; Mr. H. E. Chapan; Mr. S. J. Clevely; Mr. Wilbraham V. Cooper; Mrs. A. Jenner

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Mr. C. Ernest Elcock; Mr. and Mrs. Walter M. Epps; Mr. H. B.

(Ol. S. N. Falkner, O.B.E.; Mr. and Mrs. Ewart W. Fisher; if Banister F. Fletcher, M.Arch., F.S.A., F.S.I.
Mr. and Mrs. Charles H. Gage; Miss Gage; Mr. H. S. Goodhart-

endel; Mr. Donald Grant; Miss Muriel Griffiths.

Rendel; Mr. Donald Grant; Miss Muriel Griffiths.

Mr. E. Stanley Hall, M.A.; Mr. and Mrs. H. Austen Hall; Mr. A. Jesop Hardwick, P.A.S.I.; Miss A. B. Hardwick; Miss M. C. Hardwick; Alderman H. B. Harper, J.P.; Mr. J. Stockdale Harrison; Mr. and Mrs. Sidney Harvey; Mr. E. R. Hatfield, D.S.O.; Mr. Ferard J. Haynes, B.A., (Secretary, R.I.B.A. Board of Architectural Education), and Mrs. Everard J. Haynes; Mr. William Haywood; Mrs. Howard Hazell; Mr. Oswald Healing, F.S.I.; Mr. P. D. Hepworth; Mr. Henry Holloway; Lt.-Col. P. A. Hopkins, O.B.E., and Mrs. P. A. Hopkins; Miss P. Hopkins.

Captain and Mrs. A, Illingworth; Mr. L. A. F. Ireland, M.C., and Wrs. I. A. F. Ireland, M.C., and

s. L. A. F. Ireland.

Mr. G. L. Auldjo Jamieson; Mr. and Mrs. H. Langley Jones. Mr. and Mrs. William Kaula; Mr. Arthur Keen; Mr. C. Kennard, S.I.; Miss Gertrude Kingston; Mr. Sydney D. Kitson, M.A. S.A., (Hon. Secretary, R.I.B.A.); Miss A. B. Kitson; Miss E.

Mr. R. Laidlaw-Smith, M.C.; Alderman G. A. Lansdown,

J.P., F.S.I., and Mrs. G. A. Lansdown; Mr. and Mrs. Albert T. Latham; Mr. and Mrs. Charles Lewin; Mr. John W. Little; Mr. Albert P. Lloyd, M.C., and Mrs. Albert P. Lloyd; Mr. Reginald W. Lone; Mr. Percy W. Lovell.

Manchester Guardian; Mr. and Mrs. James Marshall; Mr. and Mrs. Cecil Masey; Mr. H. W. Matthews; Mr. Edward Maufe, M.A., and Mrs. Edward Maufe; Mr. J. R. McKay; Mr. Chas. McLachlan (President, The Association of Architects, Surveyors and Technical Assistants) and Mrs. Chas. McLachlan; Mr. Oswald P. Milner, Mr. Frederick A. Minter, C.V.O.; Mr. and Mrs. W. J. Mountain;

Mr. John Murray; Lt.-Col. G. Val Myer.
Professor W. G. Newton, M.C., M.A., and Mrs. W. G. Newton;
Mr. D. Barclay Niven; Miss Marianne Niven; Professor Percy E.
Nobbs, M.A., R.C.A., F.R.A.I.C.; Dr. Cyril Norwood, M.A., and Mrs. Cyril Norwood.

Mr, and Mrs, A. A. Ospalak. Mr. R. Barry Parker, J.P., and Mrs. Barry Parker; Mr. Oswald E. Parratt, F.S.I., and Mrs. Oswald E. Parratt; Mr and Mrs. Lionel G. Pearson; Mr. and Mrs. Mark Pitter; The Press Association.

Pearson; Mr. and Mrs. Mark Pitter; The Press Association.
Major F. W. Rees, R.E., and Mrs. F. W. Rees; Professor A. E.
Richardson, F.S.A., and Mrs. A. E. Richardson; Mr. and Mrs.
A. Leonard Roberts; Mr. and Mrs. C. A. Rowley.
Mr. Ingalton Sanders (President, The Hampshire and Isle of
Wight Architectural Association) and Mrs. Ingalton Sanders;
Mr. A. A. Saunders; Mrs. Chas. Sayers; Sir Giles Gilbert Scott, Hon, LL,D., R.A., and Lady Scott; Mr. J. Alan Slater, M.A.; Mr. Edwin Smith (Chairman, Western (Swansea) Branch, The South Wales Institute of Architects); Mr. C. D. Spragg (Asst. Secretary, R.I.B.A.); Mr. and Mrs. H. J. C. Stevens; Mr. L. Sylvester Sullivan: Mr. F. Sutcliffe.

Mr. F. Sutcliffe.
Mr. and Mrs. T. S. Tait; Mr. E. A. D. Tanner; Mr. Rodney F. Tatchell, B.A.[Arch.]; Mr. Sydney Tatchell; Mr. John M. Theobald, F.S.I.; Mr. and Mrs. Edwin Thomas; Mr. and Mrs. R. A. Thompson; The Times; Mr. and Mrs. A. F. A. Trehearne.
Mr. Kenneth Ward (President, The West Yorkshire Society of Architects); Mr. E. Berry Webber; Mr. Eric F. Wettern; Mr. and Mrs. Victor Wilkins; Mr. Meyrick Williams; Mr. F. J. Wills; Mr. E. A. Wilson; Lt.-Col. F. Woodcock, D.S.O.; Mr. and Mrs. G. Grey Wornum; Mr. J. Hubert Worthington, O.B.E., M.A. [Arch.], (President, The Manchester Society of Architects), and Mrs. J. Hubert Worthington; Mr. J. B. Wright, O.B.E., and Mrs. J. B. Wright. Mr. H. T. Young.

Correspondence

CHURCHES AND CHEAP ACOUSTICS

2 Bedford Square, W.C.1. 20 March 1933.

To the Editor, JOURNAL R.I.B.A.,-

Dear Sir,—Mr. Bagenal writes, as always, what I hope I may call, without being suspected of a *double entente*, sound sense. He writes with evident approval of the auditorium plan for churches, and adduces serious arguments in favour of his contention. But I cannot help feeling that this way danger lies, for a church has many uses besides that of accommodating listening crowds, uses perhaps of even higher importance.

It was the Dean of Chester, I think, whose experience led him to the conclusion that the collection of crowds, even in a cathedral church, was not the best way of attaining the end for which all churches are built; and it was Newman, a sound philosopher in such matters, who said "I should like to lay it down as a principle, indeed it is a principle, that no place can be devotional unless it be small." He instanced St. Mark's, Venice, as the ideal church, because it was broken up into so many small chapels.

Some years ago a newspaper published a weekly census of attendance at several churches, if memory serves me, but it set about it in the wong way by estimating the numbers present at the principal Sunday services. The true way to ascertain whether a church is well worked (if numbers are any criterion) is not to count the attendance at high mass or the audience "sitting under" a favourite preacher at evensong, but to find out how many are present at the week-day offices, guild services and the like, and more particularly those who make use of the church-apart, of course, from sight-seeing-at all times of the day and all days of the week. For these purposes there is no need to offer sacrifices to the god of acoustics, if other equally valuable qualities are likely to suffer thereby. The serried ranks of fixed benches, which must be the chief characteristic of an auditorium church, do not tend towards a devotional atmosphere, any more, say, than aluminium-painted radiators.

Acoustically the position of the pulpit is, I agree, of great importance. It usually stands at the east end of the nave, which in a large church is distinctly bad. In a church built some forty years ago at Teddington the pulpit is placed about midway down the nave, and at sermon time all those seated to the east of it turn their chairs round to face the preacher, without any fuss and in the most natural way possible; common sense thus prevailing over the stiff and meaningless propriety from which we suffer many things, and not gladly.

In conclusion, I do beg planners of churches to beware of what I must call, pace Mr. Bagenal, the auditorium heresy.—I am, Your obedient servant, F. C. Eden [F.]

THE SALTER REPORT AND THE COST OF ROADS

18 Abingdon Street, Westminster,

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To the Editor, JOURNAL R.I.B.A.,-

SIR,—In the controversy which is proceeding as to the effect of the Salter Report as between the road hauliers and the railway companies, the interest of the ordinary ratepayer, who is not so greatly interested in either of the parties, appears to have been somewhat overlooked.

Broadly, the sites of the roads, which have either been dedicated to public use by adjoining landowners or constructed by the old Turnpike Companies, have been maintainable for the last century by the local ratepayers, supplemented in recent years by grants from the Imperial Exchequer.

Whilst the traffic on the roads consisted only of horse-drawn vehicles the cost of such roads amounted to a few pence in the f for rates. The cost now (excluding the grants from the Road Fund, which represent about £18,500,000 and which it is understood are derived from the licences of mechanically propelled vehicles) based on the total rateable value of Great Britain, whether found by the Imperial Exchequer by way of block grants, or by local rates, is equivalent to about 2s. 11d. in the £, and some hold the view that this cost should be discharged wholly by the road users.

Whatever may be the merits of the case between the railway companies and the road hauliers the contention must be admitted that the site of the roads, their maintenance and police control are provided for the road users by the ratepayer and taxpayer of the country, and that the contributions of the road users by way of licence duty do not cover one-third of the cost.

It is understood that the road hauliers contend that the produce of the petrol duty should go in relief of road costs, and whilst this would entirely cover the full expenditure, estimate by the Salter Conference at £60,000,000, it would mean a proportionate saving in local rates, probably in the region of 2s. 2d. in the £.

On the other hand, the extent to which the contribution to the Imperial Exchequer is thus reduced would probably have to be made up by the taxpayer.

Under the terms of the reference to the Salter Conference their deliberations were confined to goods vehicles, and it is estimated that if effect is given to the recommendations contained in the Report the relief to the ordinary ratepayer would be about 2d. in the £, but if the views envisaged by the Conference as to the extension of increased duties to other heavy forms of vehicle, by which is implemented heavy passenger vehicles, were carried out, an additional 4d. in the £ might be looked for, making a total relief to the ratepayer of 6d. in the £—Yours faithfully,

HARRY BARNES, [F.]

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THE PRESS AND THE ARCHITECTURAL PROFESSION

5-7 Yelverton Road, Bournemouth. 8 March 1933.

To the Editor, JOURNAL R.I.B.A.,-

SIR.—(in nothing be done to stop misleading and inaccurate information being published in so-called trade ournals and even in the provincial Press regarding architects' usiness?

We have had numerous examples of entirely erroneous inormation being published about our business activities which ave caused us to be flooded with trade circulars, correspondence and many long-distance telephone calls.

One recent example has been the publication by a proincial paper of nearly two columns about proposed ice rinks Westeliff, Brighton and Bournemouth, with the statement hat we are architects for these schemes, etc. We have no conection whatsoever with these schemes, but the published inormation has caused us and firms writing us needless work and spense.

Another instance recently has been the publication by a rade journal of the private address of one of our partners and he is now being pestered at home with every conceivable kind of circular. As this private address is some three miles from our business address firms' representatives are naturally annoved at being sent on wrong journeys.

We strongly suggest that firms should cease subscribing to the various trade journals unless they are assured that the information they receive is correct information.

We also suggest that it would be in the interest of the entire profession if our Institute agreed to bring an action against one of these journals on obtaining the information necessary.-Yours faithfully, JACKSON & GREENEN [FF.].

TRANSMISSION OF LIGHT AND HEAT THROUGH GLASS

9 Gray's Inn Square, London, W.C.1. 17 March 1933

To the Editor, JOURNAL R.I.B.A.,

DEAR SIR, -The somewhat involved arithmetic of Mr. M. L. Anderson in the current issue of the JOURNAL is, when analysed, singularly unconvincing. If there be, as is stated in his article, a singularly unconvincing. If there be, as is stated in his article, a glass on the market which "admits 70 per cent. (or 60 per cent.) of the sun's light and excludes 80 per cent. of its heat," a certificate to that effect, which could easily be obtained from Building Research Station D.S.I.R., would not only finally settle the point raised in my letter, but would form the best possible advertisement for the glass. Until such is forthcoming scepticism becomes a duty which architects owe to their clients.-Yours faithfully,

PERCY WALDRAM

Obituary

EDWARD PENFOLD [F.]

Mr. Penfold, who for over thirty years was well known in Reigate an architect, antiquarian and town-planner, was born in Reigate 1866, and was educated at the Reigate Grammar School. He was ticled, and later was for a considerable time with the firm of Messrs. ford and Hesketh in London. In 1893 he acquired an interest in the entury-old established business of Mr. Edward Larmer. Having sed the qualifying examination of the Royal Institute of British Architects in 1895, Mr. Penfold became a member, and later, in 1927, as elected a Fellow.

When the town was sold in 1926 Mr. Penfold acquired his present usiness premises in Bell Street, which were built in 1700, and conjunction of the features of a fast disappearing Reigate. Besides being Fellow of the R.I.B.A., Mr. Penfold held the office of hon. auditor to e Guildford District Chapter of the South-Eastern Society of Archicts, in connection with which he did a good deal of work. One of s most recent successes followed upon his intensive study of the new ience of town planning, and he was one of very few in the country were successful in passing the examination for membership of the own Planning Institute.

For over 32 years Mr. Penfold was a keen Mason, and in the year 1912 was Worshipful Master of the "Royal Albert Edward" Lodge No. 1362, and in 1920 attained the rank of Prov. Grand Supermendent of Works in the Province of Surrey. Mr. Penfold was an thority on the history of old Reigate, and his interesting lectures this subject will be remembered by many people. His strong antiuarian interest led to the preservation of many of the old buildings ad places of interest in Reigate. In this connection he was an active

ember of the Surrey Archæological Society. When over fifty he volunteered for active service, and was drafted France in March 1917, where he remained until demobilised in bruary 1919, his only son, Edward Norman, being killed in 1918.

Mr. Penfold was an enthusiastic Free Churchman, and was a loval ad lifelong member of the Reigate Congregational Church, of which was hon, secretary from 1906-12. The church was remodelled by im in 1920, the apse being redesigned as the war memorial, in which the Norman style of architecture is followed out in the oak smelling, choir screen and lecterns. This remodelling made the thurch one of the most famous in the Free Church world.

During Mr. Penfold's professional career he was responsible for several public buildings in Reigate and district, but largely his activities lay in different parts of the country, and his work was very widespread. He also was thoroughly conversant with all phases of hotel and public-house work, together with licensing laws.

WILLIAM MACKERETH DEAN [A.]

Mr. W. M. Dean was born at Gravesend, Kent, in 1876, and entered the architectural profession in 1894, as an articled pupil to Mr. James Thomas Walford, architect, of Buckingham Palace Road, London, and River View, Northfleet, Kent. Later, he was an assistant to Mr. Pennington, architect, of Norfolk Street, Strand, W.C.2, and for a time assistant to Mr. Huntley-Gordon, of Park Lane, W., afterwards returning to the office of Mr. Pennington.

He was elected an Associate of the R.I.B.A. in 1901, and two years later joined the staff of Mr. A. N. Prentice, F.R.I.B.A., as chief assis-

tant, eventually becoming his partner in 1921. This appointment he retained until his death. He was for some time honorary architect to the Gravesend Hospital.

He joined the Royal Engineers (T.) as a lieutenant early in 1915, serving with the British Expeditionary Force in France until some time after the Armistice. He rose to the rank of major, and was

awarded the Military Cross for erecting a bridge under heavy enemy

WILLIAM RICHARD GLEAVE [A.]
Mr. W. Gleave, in election one of the oldest Associates of the
Institute, was articled to Mr. M. Hacking in Manchester in 1888.
For two years he acted as Assistant to Mr. White, in London, and in 1896 he went to Dublin. In 1903 he set up in practice in Nottingham in partnership with Mr. A. R. Calvert, and in 1911 he set up in practice independently.

Mr. Gleave specialised in domestic and church work, and examples of his work may be found in Nottingham, Leicester, Manchester and Bournemouth. He was the architect for the first Government Housing Scheme in Nottingham, carrying out 350 houses on the Stockhill Lane Estate for the Nottingham Corporation. He was also architect for the Dorothy Boot homes at Wilford, and carried out the altera-tions to the Old Moot Hall, Nottingham.

Mr. Gleave was one of the founders and for some years the Honorary Secretary of the Architectural Association of Ireland.

Notes

PRESIDENT'S ENGAGEMENTS

The President attended the Annual Dinner of the Berks, Bucks and Oxon Architectural Association on 23 March.

VICE-PRESIDENTS' ENGAGEMENTS

Mr. L. Sylvester Sullivan attended the Annual Luncheon of the British Electrical Development Association on 17 March.

Mr. Sydney Tatchell attended the Annual Dinner of the Institution of Engineers-in-Charge on 24 March.

Mr. Sydney Tatchell (Vice-President) will be attending the Annual Dinner of the Worshipful Company of Plumbers on 1 May.

COLONEL JOHN MAURICE ARTHUR, [F.]

Colonel J. M. Arthur, C.M.G., D.S.O., T.D., has been appointed a Deputy Lieutenant of the County of Lanark.

THE ST. PAUL'S ECCLESIOLOGICAL SOCIETY

A meeting of particular interest to students of church design will be held in the Institute Galleries on Wednesday, the 29th inst., at 8 p.m., when Mr. N. F. Cachemaille-Day [A.] will read a paper on "Ecclesiastical Architecture in the Present Age" for this Society. Visitors are invited, no tickets being needed. Numerous illustrations of post-war work will be shown, and as several eminent members of the profession have already intimated their intention of being present a good discussion should follow:

The series of popular lectures on "The English Parish Before the Reformation" has been very well attended. The last of the present series, entitled "After the Black Death," will be given on Wednesday, 5 April, in the Institute Galleries, at 8 p.m., by Mr. F. Herbert Mansford [F.]. Arrangements are already being made to continue the series in the autumn, as it is obvious that there is a public for lectures of this character.

AMENDMENTS TO R.I.B.A. BYE-LAWS

We print below a copy of a notification that has been received from the Privy Council approving the Amendments which were approved at the Special General Meetings held on 9 and 23 January 1933.

AT THE COUNCIL CHAMBER, WHITEHALL

THE 16TH DAY OF FEBRUARY, 1933

By the Lords of His Majesty's Most Honourable Privy Council

WHEREAS the Royal Institute of British Architects has at a Special General Meeting in exercise of the powers in that behalf conferred on it by the Supplemental Charter dated the 28th day of March, 1887, by Resolutions of the 9th January, 1933, made certain amendments to the Bye-laws of the said Institute; which Resolutions were confirmed at a Special General Meeting on the 23rd January, 1933:

AND WHEREAS by Article 33 of the said Supplemental Charter it is provided no Bye-laws shall be of any force or validity whatever unless and until they have been approved by the Lords of the Council:

AND WHEREAS the said amendments of Bye-laws have been submitted to the Lords of the Council for allowance:

NOW, THEREFORE, Their Lordships, having taken the said amendments of Bye-laws into consideration, are pleased to allow the same as set forth in the Schedule to this Order.

M. P. A. Hankey.

SCHEDULE

Amendments of the Bye-laws of The Royal Institute of British Architects

- (1) The following sub-clause to be added at the end of Byelaw 28:—
 - "(j) The Chairman of the R.I.B.A. Registration Committee being a Fellow of the Royal Institute."
- (2) In Bye-law 34, line 3, the words "all the Vice-Presidents" to be omitted.
- (3) The following new Bye-law, to be called Bye-law 34(a), to be inserted after Bye-law 34:—

"The Vice-President nominated by the Allied Societies'
Conference and one of the three other VicePresidents mentioned in Bye-law 28 (a) shall also
retire on the last day of June in each year. The
Vice-President who shall have been longest in office
shall retire first or, in the event of service being equal,
the Vice-President to retire in any year shall be
decided by the drawing of lots."

WARNING TO MEMBERS

A member of the Institute was visited by a man calling himself "G. E. Cossar, F.R.I.B.A.," who solicited financial help.

Mr. Cossar, a former licentiate of the Institute, died many years ago, and it is clear that his name is being used by an impostor.

If any member receives a similar visit he is asked to communicate at once with the Secretary R.I.B.A.

METROPOLITAN WATER BOARD ACT, 1932

In answer to several enquiries about the Metropolitan Water Board Act, 1932, it is thought it would be useful to print the following extract relating to the transfer of communication pipes to the Board:—

Transfer of Communication Pipes to the Board.

3. As on and from the date of transfer so much of every service pipe existing at that date as constitutes at that date a communication pipe shall by virtue of this Act be transferred to and belong to the Board and the rights and obligations of the Board with reference to the maintenance repair renewal and removal of pipes laid down by them shall extend and apply to all communication pipes so transferred to them as if such communication pipes had been laid down by the Board:

Provided that if at any time after the date of transfer a stopcock is fitted on a communication pipe so transferred to the Board on which a stopcock was not fitted on or before that date the foregoing provisions of this section shall as from the date of such fitting cease to apply to so much of such communication pipe as lies between the stopcock and—

(a) the boundary of the street; or

(b) the point at which the service pipe enters any premises in or under the street;

whichever is the nearer to the service main with which such communication pipe is connected and on and from the lastmentioned date that portion of such communication pipe shall by belong such covested a repair is supply of trans 4s to Co. 4--(Board s

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shall by virtue of this Act be transferred from the Board to and belong to the person in whom the supply pipe connected with such communication pipe was immediately before that date vested and shall for all purposes (including the maintenance repair renewal and removal thereof) become part of such supply pipe as if the said stopcock had been fitted at the date of transfer.

Is to Communication Pipes for Supplies Required after Appointed Day.

4—(1) For the purposes of any supply of water which the Board shall be required on or after the appointed day to firmish for any purpose the Board shall notwithstanding anything contained in any other Act relating to them have the exclusive right to provide and lay down and shall (at the request of a consumer who has laid the supply pipe and paid or tendered the water rate or portion of water rate payable in respect of the premises to be supplied) provide and lay down with all reasonable dispatch the communication pipe with any other necessary and proper apparatus including a stopcock with a suitable box and cover. Provided that if the Board so require the consumer shall deposit with the Board before they commence to lay down such communication pipe and apparatus such a sum as the Board may deem reasonably necessary to meet the expense of providing and laying down the same.

(2) The cost incurred by the Board in providing and

(2) The cost incurred by the Board in providing and laying down any such communication pipe and apparatus as sideresaid shall be borne by the consumer and the amount of such cost or so much (if any) thereof as shall not be covered by any sum deposited with the Board as aforesaid (as the case may be) shall upon the completion of the laying down of such communication pipe and apparatus be repaid to the Board by the consumer and shall be recoverable by the Board in the like manner as the water rate payable in respect of the premises supplied or to be supplied is recoverable.

[3] All communication pipes (with any such apparatus as aforesaid) provided and laid down by the Board in accordance with the provisions of this section shall belong to the Board and the rights and obligations of the Board with reference to the maintenance repair renewal and removal of pipes laid down by them shall extend and apply to such communication

pipes and apparatus.

ARCHITECTS' UNEMPLOYMENT RELIEF FUND

The Architects' Unemployment Committee have very gratefully to acknowledge the following donations received since the last list was published in the JOURNAL:—

£ s. d.

Messrs. W. G. Newton and	Partne	ers (se	cond	,,		
donation)				20	0	()
The Manchester Society				IO	0	0
The Rt. Hon. Lord Riddell				5	5	0
Mr. Humphrey Goldsmith				5	5	-0
Messrs. Knapp Fisher, Powell a	and Rus	sell (se	cond			
donation)				.5	0	0
Mr. L. M. Newell (third don	nation)			12	2	0
Mr. S. D. Igglesden				1	-	0
Mr. Arthur Keen (second dor	nation)			1	1	0
Mr. R. J. Page		* *	* *	1	1	0
Mr. Walter G. Ross				1	1	0
Mr. B. M. Ward (second dona	tion)			1	0	0
The following have also renew	ved the	ir subs	criptic	ons:-	_	
The Architects' Department of						

Mr. W. F. Foster: Mr. R. E. Adams. Mr. A. Mutimer.

Mr. L. Senyard.

HOUSING

THE PARLIAMENTARY COMMITTEE

The Minister of Health recently announced in the House of Commons that the Departmental Committee that has been set up to consider slum reconditioning and other matters is to consist of the following members:—

The Rt. Hon. the Lord Moyne, D.S.O., chairman.

Sir Francis Dyke Acland, M.P. for Northern Cornwall.

Major J. W. Hills, M.P. for Ripon.

Sir Charles Barrie, M.P. for Southampton.

Sir Geoffrey Ellis, M.P. for Winchester.

Sir Vivian Henderson, M.P. for Chelmsford.

Miss F. Horsbrugh, M.P. for Dundee.

Mr. N. K. Lindsay, M.P. for South Bristol.

Major G. Lloyd George, M.P. for Pembroke.

Dr. J. V. Worthington, M.P. for the Forest of Dean.

The terms of reference were to be as follows:—

To consider and report-

- (a) What, if any, further steps are necessary or desirable to secure the maintenance of a proper standard of fitness for human habitation in working-class houses which are neither situate in an area suitable for clearance under Part I of the Housing Act, 1930, nor suitable for demolition under section 19 of that Act; and
- (b) What, if any, further steps are necessary or desirable to promote the supply of houses for the working classes, without public charge, through the agency of public utility societies or other bodies subject to similar limitations operating in particular areas or otherwise.

All communications should be addressed to the Secretary of the Committee, Mr. S. F. S. Hearder, at the Ministry of Health, Whitehall, S.W. I.

FRANCO-BRITISH UNION OF ARCHITECTS

XIIITH ANNUAL MEETING

The thirteenth annual meeting of the Franco-British Union of Architects will take place at Caen (France) from Friday, 2 June to Monday, 5 June 1933. Excursions to many places not usually open to the public will be included in the programme.

Members who expect to be able to attend are asked to send their names to the Secretary-General (Lt.-Col. H. P. Cart de Lafontaine), 11 Suffolk Street, Pall Mall, S.W.1.. as this will facilitate travel arrangements, for which it is hoped to obtain special reduced rates.

A HOLIDAY TOUR TO NORTH AFRICA

At the request of members of previous tours, it has been decided to visit Tangier, Tetuan and Gibraltar this year.

The tour will have all the advantages of a cruise, but will give five days ashore, and will be made by the British India Line from London Docks, returning via P. & O. Line.

The cost is 15 guineas for 15 days, commencing 25 August 1933, and includes all steamship fares, reservations, meals, etc., full accommodation at good hotel in Tangier; porterage, etc.; also two shore excursions.

Full particulars to those interested will be furnished on application to Mr. H. W. Chester [A.], "Cyrnos," 50 Herne Road, Hook Surbiton.

As accommodation is strictly limited early application is advisable.

Allied Societies

EDINBURGH ARCHITECTURAL ASSOCIATION

At the annual general meeting of the Edinburgh Architectural Association, held at 15 Rutland Square, Mr. James A. Arnott, F.R.I.B.A., was reappointed President for the ensuing year, while Messrs. Balfour Paul and Reginald Fairlie were appointed Vice-Presidents: Messrs. Alfred Greig, J. R. McKay, P. R. McLaren, T. C. Marwick, John F. Matthew, W. T. P. Bryce, G. S. Taylor and J. D. Carnegie being added to the Council instead of retiring members. Standing Committees and Conveners thereof were also elected, while Messrs. Lorne Campbell, Wilson Paterson, John Wilson and G. S. Taylor were appointed, along with the Office-Bearers, as Chapter representatives to the Council of the Royal Incorporation of Architects in Scotland. In the report of Secretary and Treasurer for Session 1932–33, Mr. Nicol Bruce stated that the present net membership of the Association was 390, there having been an accession of 129 new members during the past three years, and that through rearrangement of the previous investments during the past eighteen months, the total funds showed an increase of over 50 per cent. It was also stated that the Association, through its constant enterprise and vigilance, was becoming yearly a greater and more influential professional force in the capital as to all questions affecting amenity, art and architecture.

The competition prize-winners of the Associate Section were: Miss Inch Morrison and Messrs, P. R. Whiston, P. A. Robertson,

R. H. Taylor, W. I. Thomson and A. Reiach. In his valedictory address at the annual general meeting of the Edinburgh Architectural Association, held at 15 Rutland Square, the President, Mr. James A. Arnott, F.R.I.B.A., put in a plea for a Building Centre in Edinburgh, similar to that recently instituted in New Bond Street, London. Edinburgh, he said, was a capital city and an educational centre, and their technical instruction would not be complete until Edinburgh possessed a unit similar to that in London. He also stressed the importance of all qualified architects being registered before the end of the current year. It was probable that within the next few years all professional work of any status would and could be undertaken only by architects on the Register. This procedure had been followed in Rome since 1887. Mr. Arnott referred to the great number of leading architectural prizes which had been gained in recent years by members of the Association who were students at the Edinburgh College of Art, a boom which was reminiscent of 30 years back. He expressed his cordial congratulations to the prize-winners and College alike, and urged the students to continue adding to the name and fame of Edinburgh as a centre of art and architecture.

SOUTH WALES INSTITUTE OF ARCHITECTS

CENTRAL BRANCH

Under the auspices of the South Wales Institute of Archivets (Central Branch) and the Institute of Builders (South Wales Branch) a lantern lecture on "The Limits of Professional Design" was given in the lecture theatre of the Engineers' Institute, Park Place, Cardiff, on Thursday, 2 March, by Sir E. Owen Williams, K.B.E., when Mr. E. A. Ward, F.I.O.B., presided over a large audience.

Sir Owen Williams dealt with the present-day significance of design, the way in which it has become almost the sole prerogative of a professional in spite of the fact that the financial responsibility for design is in common law the contractor's. He defined the exact purpose for which a professional adviser is employed, and suggested that the professional adviser who does not set definite limits to the design ing side of his function is doing poor service to his client. He also pointed out that the standardisation of materials and articles is rendering the position of a professional adviser more particularly selective rather than a designer of detail, and that this will reach its logical conclusion when the designer and contractor are one, as is the case with all modern constructions which are not trammelled by professional convention. The professional will then be restricted to his true function as an adviser and selector, and will not interfere with the free design by the constructor to facilitate his own operations.

The lecturer concluded his address by showing some lantern illustrations of examples of his work. An interesting discussion followed during which architects and others present gave their views on certain points raised by the lecturer. On the proposal of Mr. Percy Thomas, F.R.I.B.A., seconded by Mr. F. J. Thomas, a hearty vote of thanks was accorded to the lecturer with acclaration.

was accorded to the lecturer with acclamation.

At the invitation of the Chairman (Mr. Percy Thomas, F.R.I.B.A. and the Executive Committee of the South Wales Institute of Architects (Central Branch) an enjoyable and instructive evening was spent by a large gathering of members on Thursday, 9 March 1933, when a tea and discussion meeting was held at the Dorothy Cale. St. Mary Street, Cardiff.

The discussion—on Functionalism in Architecture—was opened by two student members, Mr. H. J. W. Lewis and Mr. D. W. Robers, the former speaking in favour of functionalism and the latter against. Many of those present joined in the debate, which proved to be particularly interesting and helpful.

A vote of thanks to the Chairman (Mr. Percy Thomas, F.R.LB.), was passed with acclamation, on the motion of Mr. W. S. Purchon, Mr. Thomas, in responding, voiced the feeling of the meeting in giving high praise to Messrs. Lewis and Roberts for their opening addresses.

SCHOOL NOTES

ARCHITECTURAL ASSOCIATION

SPRING TERM. During this term the first awards of the Council's new prize for draughtsmanship and presentation in connection with specified subjects for particular years have been made. In the fourth year Miss J. B. Drew was successful for the decoration subject, while in the fifth year E. T. Dowling gained the prize for a detail design subject, "An Entrance and Forecourt to a Block of Flats." The Council's draughtsmanship and presentation prize of one guinea will in future be awarded once a session in each year.

The visits to the building centre were continued, and other visit arrangements included an inspection of the new gorilla house at the Zoological Gardens. The partners of the firm of Messrs. Tecton, who are past students of the school, conducted the party, and the visit proved very interesting. Mr. Shurley Smith, of Messrs. Dorman Long and Co., gave an account of the building of Sydney Harbour Bridge

to the fifth year, and Mr. S. E. Bylander gave a talk on "Welded Steel," with particular reference to the Freemasons' Hospital. After the exertions of the "Tite en loge," a "Tite Dance" was held

in the lecture halls on the evening following the preliminary round. During February the A.A. of Ireland paid the A.A. a visit, but of account of wretched weather the Rugger match at Elstree had tobe abandoned before the close, when the A.A. had a short lead, rain and mud being the most prominent features. The Irishmen were shown as much of London the day before the match as was possible in the time available.

The Council has announced that conditions of the new Leverhulm Scholarship are now available.

THE WELSH SCHOOL OF ARCHITECTURE

Two interesting lectures have recently been given to the student and staff of the Welsh School of Architecture, the Technical College

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Cardiff. On Monday, 27 February, Mr. George L. Jennings, M.H.V.L., A.M.I.Gas E., of the British Commercial Gas Association, spoke on "Smoke Abatement and Gas from an Architectural Point of View," giving much interesting information on the effect of pen coal fires on health and on masonry structures, and on the use of

open control of the data of gas for domestic heating and hot water supply.

On Tuesday, 7 March, Mr. R. J. Tott, of Messrs. Waygood-Otis, Ltd., exhibited and explained two films showing the construction of

the Empire State Building and the Chrysler Building, New York These films showed the manufacture of the steel, the fixing of the steelwork, and much of the special services of the buildings, including

Mr. W. S. Purchon, the head of the Welsh School of Architecture, presided at both these lectures, and at the second one a hearty vote of thanks was accorded to the lecturer on the proposal of Mr. J. H. Hallan, seconded by Mr. Lewis John.

PROBATIONERS AND STUDENTS

R.I.B.A. PROBATIONERS

During the month of February 1933 the following were registered as Probationers of the Royal Institute:-

BAINES: ARTHUR, "Boylestone," Old Station Road, Hampton-

in-Arden, Birmingham.
Barter: Alan Stewart, "The Forge," Albury, Nr. Guildford.

BEAUCHAMP: CHARLES PHILIP, 32 Downs Park West, Bristol. Bell: THOMAS FREDERICK, "The Elders," Ashington, Northumber-

BELTON: THOMAS ALFRED LEVERTON, 16 Hawton Crescent, Wollaton

Park Votts. BOYD: ANDREW CHARLES HUGH, 29 Gloucester Crescent, London, N.W.1.

BOYD: MARY MARSHALL, 59 Eastwood Boulevard, Westcliff-on-Sea.

BROCK: JOHN, Cross House, Linlithgow, West Lothian. CARR: EDWARD RIDEHALGH, 76 Bedford Street, Liverpool.

CAVE: REGINALD WILLIAM, Hadley Hotel, New Barnet, Hertford-

COWLEY: GEORGE, Church Chare, Whickham, Newcastle-upon-

Ceteliffe: Gwendoline Pearl, 45 Broad Street, Oxford.

Dale: George William, 32 Foster Clark Estate, Maidstone, Kent. Dobson: Graeme Gibson, Foswell View, Montrose Road, Auchterarder, Perths.

ERKINE: RALPH, Skeet Rookery, Givons Grove, Leatherhead.

INDLAY: JAMES ROBERT, 3 Southesk Place, Feryden, Montrose, Angus

FRASER: COLIN CAMPBELL, 24 Woodmill Terrace, Dunfermline,

Gleeson: Winefride Margaret, 29 Meadow Head, Sheffield. SATTON: THOMAS OSWALD WHITE, 2 Selborne Road, Jordanhill, Glasgow, W.3.

HAMLIN: RALPH PITT, 13A Torrington Place, W.C.1.

HARTLAND: CEDRIC EDWIN, 35 Hampstead Lane, London, N.6.
HILLHOUSE: WILLIAM WATSON, 271 Amulree Street, Sandyhills, Glasgow, E.2.

KMAN: WARWICK GRAHAM, C/O Mrs. Helson, 10 Yelverton Terrace, North Road, Plymouth, Devon.

UKSON: HELEN LILY, Ravenswood, Lenzie, Nr. Glasgow.

OENSTON: GEORGE WILLIAM, Box 21, G.P.O. Suva, Fiji.

NES: AUBREY CHAVE, "Shirley," 1 Carlyle Road, West Bridgford.

DEES: IVOR NORMAN, 5 Axminster Road, Roath, Cardiff.
KAY: HAROLD ASKEW, 1 The Crescent, Ashton-on-Ribble, Nr.

MERNOHAN: JAMES, 80 Ardshiel Road, Drumoyne, Glasgow, S.W.I.

EDNARD: SIMON, Saint Kevins, Dartry Road, Dublin.
EWIS: Idris John, "Brookdale," 13 Waterloo Gardens, Cardiff.
EWIS: THOMAS WILLIAM JOHN, Ruahine, Gt. North Road, Milford

McCarthy: Timothy Noel, Rathcoole, Banteer, Co. Cork, I.F.S. LETIN: JOHN EDWARD, Arnwell, Banchory Devenick, Aberdeen. LATTHEW: CHESSOR LILLE, Whitewell, By Fraserburgh. TCHELL: RONALD GEORGE SOLLIS, 12 Waterloo Street, Stoke

Devonport, Devon.

Morre: Ernest Theophilus, Wentworth House, Tamworth Road,

Keresley, Coventry.

OWEN: JOHN GWILYM VAUGHAN, Haulfryn, Hampton Road, Oswestry, Shropshire,

OWEN: KENNETH ALWYN, "The Haven," West Gate, Bridgnorth, Shropshire.

PLAYLE: DAVID HOWARD, 14 Woodholm Road, Ecclesall, Sheffield. RICHARDS: RONALD SYDNEY, 21 Chichester Road, Seaford, Sussex.

ROWSELL: ARTHUR JOHN, 17 St. Leonards Place, Eastbourne. TOWNSEND: CYRIL ARTHUR, 5 The Broadway, Catford, S.E.6.

URQUHART: WILLIAM JOHN, "West Bank," West Mill Road, Colinton, Edinburgh.

Warburton: Norman Joseph, School House, Thornton Curtis, Ulceby S.O., Lincs.

WHARFE: HAROLD, 1 Oxford Street, Oakworth Road, Keighley. Yorkshire.

WHITEHOUSE: ERIC HEYES, 106 Warbreck Drive, Blackpool.

WILDGUST: ALBERT, 32 Princess Road, Shaw, Lancs.

WILLARS: FREDERICK LESLIE, 4 Wellington Street, Burton-on-Trent. WILSON: HAROLD EDWARD, 112 Singleton Avenue, Prenton, Birkenhead.

WOOD: GEORGE RONALD HEIRSYNE, Whins Cottage, Crossroads, Keighley.

ELECTION OF STUDENTS R.I.B.A.

The following were elected as Students R.I.B.A. at the meeting of the Council held on 6 March 1933.

BARNARD: ARTHUR FRANCIS GERALD, 29 Stoke Newington Road, London, N.16.

BEAUCHAMP: CHARLES PHILIP, 32 Downs Park West, Bristol.
BEECROFT: CHARLES ROY, "Eversleigh," Easton-in-Gordano, BEECROFT: CHARLES ROY,

Somerset. BETHELL: GEORGE ALFRED, 110 Montpelier Road, Lenton, Notting-

ham. Browning: John Alexander, 95 Great Western Road, Glasgow.

C.4.
CASTLE: HUBERT HENRY, Lynthorp, Northcroft Road, Ilkley, Yorks.
COLLYER: WILLIAM, 16 St. Peter's Place, Edinburgh.
COULL: JAMES FINDLAY, 228 Easter Road, Leith.
COULL: JAMES FINDLAY, 288 Lester Road, Leith.

CRICHTON: CHARLES McVEAGH, Wern Isaf, Llanfairfechan.

DAVIS: ROBERT CECIL, 39 Clarendon Road, Leeds, 2. DAVY: Geoffrey, "Oak Garth," Ben Rhydding, Ilkley, Yorks.

DONALDSON: JOHN FERGUSON, 11 Dublin Street, Edinburgh. FORGE: JAMES WILLIAM LINDUS, Green Gables, Cavendish Road. Weybridge, Surrey.

HAMLIN: RALPH PITT, 13A Torrington Place, London, W.C.I. HAYTON: MATTHEW, 99 Gilesgate, Durham, HENDERSON: WILLIAM GIBSON, Townhead, Kintore.

HOMAN: WILLIAMINA KATHERINE, 2 Friar's Road, Winchelsea.

JOHNSTON: GEORGE WILLIAM, BOX 21, G.P.O., Suva, Fiji.

McKenna: Albert Edward, 5 Kenilworth Road, London, S.E.20. Morgan: Reginald Dewar, "The Terraces," Shakespeare Road, Napier.

MORRISON: RONA HELEN INCH, Topgates, Ravelston Dykes, Edin-

PAGE: TERENCE CULMER, 8 Cedars Road, London, W.4.

ROBERTS: SYDNEY GEORGE, "Pant-Glas," Felinfoel Road, Llanelly. RUTTER: FRANK MOWBRAY, 45 Hopton Road, Streatham, S.W. 16. SHAPLEY: RONALD STUART, 25 Copgrove Road, Leeds. 8.

SHERWELL: EILEEN MAY, 13 Midmar Gardens, Edinburgh

SMITH: ALEXANDER JAMESON, 6 Kennard Street, Falkirk, Scotland, SMITH: CARMEN STELLA GREGORY, 16 The Mall, Surbiton, Surrey. Thompson: Hugh Bruce, 18 Ewesley Road, Sunderland.

MICHAEL ERIC, I Darmonds Green, West Kirby, THORNELY: Cheshire.

WARD: ELIZABETH MURRAY, 23A Drayton Gardens, London. WILSON: HUBERT FRANK, 103 High Street, West Norwood, London,

S.E.27

WILSON: WILLIAM, "Glencairn." Traquair Park West, Corstorphine, Edinburgh 12.

Notices

THE EIGHTH GENERAL MEETING

The Eighth General Meeting of the Session 1932-33 will be held on Monday, 3 April 1933, at 9 p.m., for the following purposes:

To read the Minutes of the Seventh General Meeting, held

on Monday, 20 March 1933.

To present the Royal Gold Medal to Sir Charles Reed Peers. C.B.E., M.A., F.R.I.B.A., President of the Society of Antiquaries and Chief Inspector of Ancient Monuments and Historic Buildings

EXHIBITION AT THE R.I.B.A.

A collection of photographs, etc., of work carried out by the Department of Ancient Monuments and Historic Buildings under the direction of Sir Charles Peers will be on exhibition in the R.I.B.A. Meeting Room on the evening of the presentation of the Royal Gold Medal and will remain open daily between the hours of 10 a.m. to 8 p.m. (Saturday, 10 a.m. to 5 p.m.) until Wednesday 12 April, inclusive.

POPULAR LECTURES

The following is a list of the remaining lectures in the series of six popular lectures, illustrated by lantern slides, on "How to Look at London," taking place in the R.I.B.A. Meeting Room on Wednesdays during March and April. The lectures will commence at 6 p.m. and will last about one hour. Admission will be free.

March 29th.—"Where Londoners Play." Mr. Morton Shand. April 5th.—"Where Londoners Shop." Mr. F. E. Town-

drow [A.]. April 12th .--"What London Might Be." Mr. A. B. Knapp-Fisher [F.].

THE BRITISH ARCHITECTS' CONFERENCE, CAMBRIDGE

21-24 JUNE 1933

The Annual Conference of the Royal Institute of British Architects and its Allied and Associated Societies will take place at Cambridge from 21 to 24 June 1933. The Cambridge Chapter of the Essex, Cambridge and Hertfordshire Society of Architects have in hand the preparation of a most attractive programme, and particulars will be issued in due course.

All members and students of the R.I.B.A. and all members of the Allied Societies, the Architectural Association, and the Association of Architects, Surveyors and Technical Assistants, are cordially invited to attend the Conference.

It is expected that there will be a large attendance of members from all parts of the country, and they are urgently requested to arrange for their hotel accommodation at the earliest possible date so as to avoid the risk of disappointment.

The Executive Committee of the Conference have kindly furnished the following list of hotels with charges:-

Hotel Accor	mmodati	on per person	Full board per day for minimum of three days.
University Arms Hotel	80-90		Bath, Brenkfast, Lun-
Blue Boar Hotel	50-60	Luncheon 4/6 Dinner 6/6 9/6	cheon and Dinner, but not afternoon tea
Condon House Hotel	oC		(16/6 for one day)
Garden House Hotel		8/6-9/6	
Bull Hotel	60	12 -	18 -
Ye Olde Castel Hotel	40	9/-	146
Total	290		

A list of University Lodging Houses, etc., is being prepared by the Accommodation Sub-Committee and will be published in due course.

Special accommodation at cheap rates is being sought for Student Members who desire to attend the Conference,

The Steward of Trinity Hall has arranged to accommodate a limited number of members who particularly wish to stay in College. Members who desire to take advantage of this arrangement are requested to notify the Secretary R.I.B.A. as soon as possible.

NEW BUILDING MATERIALS AND PREPARATIONS

The Science Standing Committee wish to draw attention to the fact that information in the records of the Building Research Station, Garston, Watford, is freely available to any member of the architectural profession, and suggest that architects would be well advised, when considering the use of new materials and preparations of which they have had no previous experience, to apply to the Director for any information he can impart regarding their properties and application.

THE NATIONAL ASSOCIATION OF WATER USERS

Members are reminded that the National Association of Water Users, on which the R.I.B.A. is represented, exists for the purpose of protecting the interests of consumers.

Members who experience difficulties with water companies, etc., in connection with fittings are recommended to seek the advice of the Association. The address of the Association is 46 Cannon Street, London, E.C.4.

THE R.I.B.A. REGISTER OF ASSISTANTS SEEKING ENGAGEMENTS

Members and Students of the R.I.B.A. and the Allied and Associated Societies are reminded that a Register of Assistants seeking engagements is kept at the offices of the Royal Institute.

An assistant seeking employment should obtain from the Secretary R.I.B.A. the necessary form to be filled up in duplicate) on which parti-ulars must be given as to the applicant's age, qualifications, salary required, references, etc.

The application will hold good for one month from the date of receipt, after which it must be renewed on a fresh form unless the applicant has meanwhile obtained employment.

A chitects, whether members of the R.I.B.A. or not, will be furnished on application with the names and addresses of persons desiring employment as assistants, improvers or clerks 25 Me of worl should

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of works as the case may be. Architects applying for assistants should give the following particulars of their requirements: i) whether temporary or permanent engagement; (2) junior or senior assistants; (3) particulars of duties and style of work; a salary offered.

BUILDING SURVEYING EXAMINATIONS

The R.I.B.A. Statutory Examination qualifying for candidature as District Surveyor in London, and the R.I.B.A. Examination qualifying for candidature as Building Surveyor under Local Authorities, will be held at the R.I.B.A. on 3, 4 and 5 May 1933. Applications for admission to either examinaion must be made not later than 12 April 1933, on the precribed form to be obtained from the Secretary R.I.B.A., Conduit Street, London, W. 1.

Competitions

ANTWERP: TOWN PLANNING COMPETITION

The Council of La Société Intercommunale de la rive gauche le l'Escaut invite proposals for a scheme for the replanning of e area situated on the bank of the river opposite Antwerp. Proposals submitted will be examined by a Jury consisting of: Dr. H. P. Berlage, The Hague.

Mons. H. Prost, Paris.

Mons. le Baron Horta, Brussels.

Mons. Henry Van de Velde, Brussels. Mons. P. De Heem, Antwerp.

Mons. G. De Ridder, Antwerp.

Mons. J. de Bruey, Antwerp.

Premiums: 100,000 francs, two of 50,000 francs and four of .ooo francs.

Last day for sending in proposals: 31 May 1933.

The programme and necessary plans relating to the competion may be obtained on application to the offices of the ociety, 26 Rue Arenburg, Antwerp. Deposits, 20 francs for the rogramme and 80 francs for the plans.

MANCHESTER: EXHIBITION HALL

Provincial Exhibitions, Ltd., the organisers of the Manester Building Trades Exhibition, invite architects who are itish subjects, to submit, in competition, designs for a new shibition Hall for Manchester.

Assessors: Mr. H. S. Fairhurst [F.]. Mr. A. J. Hope [F.].

Mr. J. Hubert Worthington, O.B.E. [F.].

Premiums: £150, £75 and £25.

Last day for receiving designs: 13 April 1933. Conditions of the competition may be obtained on applition to the Competition Manager, City Hall, Deansgate.

PRESTWICK, AYRSHIRE: PROPOSED BURGH CHAMBERS, ETC.

The Town Counci! of the Burgh of Prestwick invite archiets resident in Great Britain, who have been in practice for least twelve months prior to 1 March 1933, to submit in mpetition, designs for new Burgh Chambers, Municipal fices and Public Baths.

Assessor: Mr. A. G. Henderson [F.]. Premiums: £200, £100 and £50.

Last day for receiving designs: 8 May 1933. Last day for applying for conditions: 15 March 1933.

SURBITON: NEW HOSPITAL BUILDINGS

The Governors of the Surbiton Hospital have now decided to hold an open competition for the new Hospital Buildings to be erected at Hill Manor, Ewell Road. The last day for the names of intending competitors to be received by the Assessor, Mr. C. Ernest Elcock [F.], was 25 March 1933. Conditions have not yet been received by the R.I.B.A.

WORKING CLASS COTTAGE COMPETITION

The Building Centre, Ltd., invite architects to submit, in open competition, designs for working class cottages which may be built at a minimum cost and so let at an economic rent. The design of a standard cottage is supplied, the cost of which has already been carefully estimated, and competitors are asked to submit plans for improving this design. Assessors: Mr. Maurice E. Webb, D.S.O., M.C. [F.].

Mr. Robert Atkinson [F.].

Mr. L. H. Bucknell [F.

Mr. Louis de Soissons, O.B.E. [F.]. Mr. Sidnev Gluckstein, F.I.O.B.

Mr. Vincent Gluckstein, F.I.O.B.

Mr. G. Grey Wornum [F.] Mr. F. R. Yerbury [Hon. A.].

Premium: £100.

Last day for receiving designs: 31 March 1933.

SWANSEA: PROPOSED NEW SCHOOL-CHURCH AT TOWNHILL

Members of the Royal Institute of British Architects and of its Allied Societies must not take part in the above competition because the conditions are not in accordance with the published Regulations of the Royal Institute for Architectural Competitions.

DOUGLAS, ISLE OF MAN: LAY-OUT OF PROMENADE

The Council of the Borough of Douglas, Isle of Man, propose to carry out a large widening scheme in connection with the Promenade, and have decided to hold a competition for the lay-out of the front, including ornamental gardens. They propose to offer premiums of £100, £50 and £25. Conditions have not yet been drawn up.

STOKE NEWINGTON: MUNICIPAL BUILDINGS

The Council of the Metropolitan Borough of Stoke Newington have authorised the holding of a competition for Municipal Offices and extensions to the Library and Electricity Offices. Conditions have not yet been drawn up.

HORNSEY: NEW TOWN HALL

The Borough of Hornsey propose to hold a competition for a new Town Hall, and the President of the R.I.B.A. has appointed Mr. C. Cowles-Voysey [F.] to act as Assessor. Conditions have not yet been drawn up.

SLOUGH: NEW COUNCIL OFFICES

The Slough Urban District Council have decided to hold an open competition in connection with the new Council Offices which are to be erected at Salt Hill. Premiums of £150, £100 and £50 will be offered and Mr. H. S. Goodhart-Rendel [F.] has been appointed by the President of the R.I.B.A. to act as Assessor. Conditions have not yet been drawn up.

Members' Column

DOUBLE ELEPHANT BOARD WANTED

Wanted, Second-hand Double Elephant board and T-square, reasonable price, by Student.—Box No. 1733, c o Secretary R.I.B.A.

JUNIOR PARTNERSHIP WANTED L.R.I.B.A. desires to correspond with architect in solitary

practice abroad with a view to junior partnership. Over fifteen years' experience of best-class work in London, besides experience abroad. Good knowledge of theodolite and level. First-class references.—Apply Box No. 9333, c o Secretary R.I.B.A.

CHANGE OF ADDRESS

From 16 March 1933 Mr. H. E. FLINN [L.] will continue in practice at 10 Park Grove, Birkenhead, Cheshire, and at 11 Manor Road, Twickenham, Middlese

Mr. Stanley Dawes (Student R.I.B.A.) has changed his address from 2 New Street, Neath, Glam., to 91 Gunterstone Road, Baron's Court, Kensington, W.14.

FOR SALE Architect's office cupboard fine antique mahogany, I foot to inches by 4 feet by 3 feet 11 inches high. Books, etc., for sale. Write F.R.I.B.A., 1 Chesterfield Street, W.C.1.

Minutes IX

Session 1932-1933

At the Seventh General Meeting of the Session, 1932-1933, held on Monday, 20 March 1933, at 8 p.m.

Mr. Sydney Tatchell, Vice-President, in the Chair.

The attendance book was signed by 28 Fellows (including 7 Members of Council , 36 Associates, 14 Licentiates, 3 Hon. Associates and a large number of visitors.

The Minutes of the Sixth General Meeting, held on Monday, 20 February 1933, having been published in the JOURNAL, were taken as read, confirmed and signed as correct.

The Acting Hon. Secretary announced the decease of:-

Professor William Cawthorne Unwin, B.Sc., F.R.S., M.Inst.C.E., Hon. Associate 1886.

Ernest Hébrard, elected Hon. Corresponding Member, France,

Frank Walter Mee, elected Fellow 1896, transferred to Retired Fellowship 1929.

Edward William Coldwell, elected Licentiate 1910.

Sydney Pelham Morter, elected Licentiate 1911.

Gilbert Wilson, transferred to Licentiateship 1925.

And it was Resolved that the regrets of the Institute for their loss be entered on the Minutes and that a message of sympathy and condolence be conveyed to their relatives.

The following members attending for the first time since their election were formally admitted by the Chairman

Mr. R. Kitching Ellison [F.] Mr. Stanley M. Osborne [L.]. Mr. Sydney R. Turner [L.]. Mr. W. A. Lea [F.]. Mr. Ernest E. Morgan [F.]. Mr. F. C. Colt [Student]

Mr. James E. Flatman [Student]. Mr. Andrew L. Gray [Student]. Miss Jessica Albery [.1.] Mr. David Gillespie [.1.].

Mr. John W. Grindal [Student]. Mr. S. Douglas Hardy [Student]. Mr. James M. Knowles [Student]. Mr. R. H. Ouzman [Student]. Mr. A. W. R. Kendrick [.1.] Mr. Reginald E. Rossell [.1.]. Mr. B. H. Thompson [.1.]. Mr. Harold Wyatt [.1.]. Mr. G. G. Lynes [L.] Mr. Collin J. Sandeman [Student].

Dr. Oscar Faber, O.B.E., [Hon. A.], having read a Paper on "Recent Developments in Building," a discussion ensued and on the motion of Sir Herbert Baker, K.C.I.E., R.A., [F.], seconded by Mr. Walter Allen, a director of Spillers, Ltd., a vote of thanks was passed to Dr. Faber by acclamation and was briefly responded to,

The proceedings closed at 10.5 p.m.

A.B.S. INSURANCE DEPARTMENT HOUSE PURCHASE SCHEME.

(For property in Great Britain only.)

REVISED TERMS.

The A.B.S. Insurance Department is able, through the services of a leading Assurance Office, to assist an Armitect or his Client in securing the capital for the purchase of a house on the following terms: -

Amount of Loan.

75 per cent. of the value of the property as certified by the Surveyor employed by the Office.

> RATE OF INTEREST. 4 per cent, Clear of Tax. LEGAL COSTS AND SURVEY FEE,

also the amount of the first quarter's premium on the Endowment Assurance referred to below, are advanced in addition to the normal loan. If the loan is continued for more than fifteen years the Survey and Legal Costs will be refunded to the Borrower on repayment of the loan.

REPAYMENT.

By means of an Endowment Assurance which discharges the loan at the end of 15 or 20 years or at the earlier death of the Borrower.

Special Concession to Architects.

In the case of houses in course of erection, it has been arranged that provided the Plan and Specification have been approved by the Surveyor acting for the Office, ONE-HALF of the amount of the loan agreed upon will be advanced on a certificate from the Office's Surveyor that the walls of the house are erected and the roof on and covered in to his satisfaction.

N.B.-Loans will not be undertaken under this scheme upon:

- (a) Property the value of which is not sufficient to warrant a loan of at least £500 or of which the value exceeds £2,500;
- (b) Property of the bungalow type;
- (c) Property not in the sole occupation of the Borrower.

If a quotation is required, kindly send details of your age next birthday, approximate value of house and its exact situation, to the Secretary, A.B.S. Insurance Department, 9 Conduit Street, London, W.1. Telephone: Mayfair 0434.

Members sending remittances by postal order for subscriptions or Institute publications are warned of the necessity of complying with Post Office Regulations with regard to this method of payment Postal orders should be made payable to the Secretary R.I.B.A., and crossed.

It is desired to point out that the opinions of writers of articles and letters which appear in the R.I.B.A. JOURNAL must be taken as the individual opinions of their authors and not as representative expressions of the Institute.

R.I B.A. JOURNAL.

Dates of Publications.-1933: 8, 29 April: 13, 27 May 17 June; 8, 22 July; 5 August; 9 September; 14 October.

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